

Flight, August 24, 1912.

FLIGHT

First Aero Weekly in the World.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

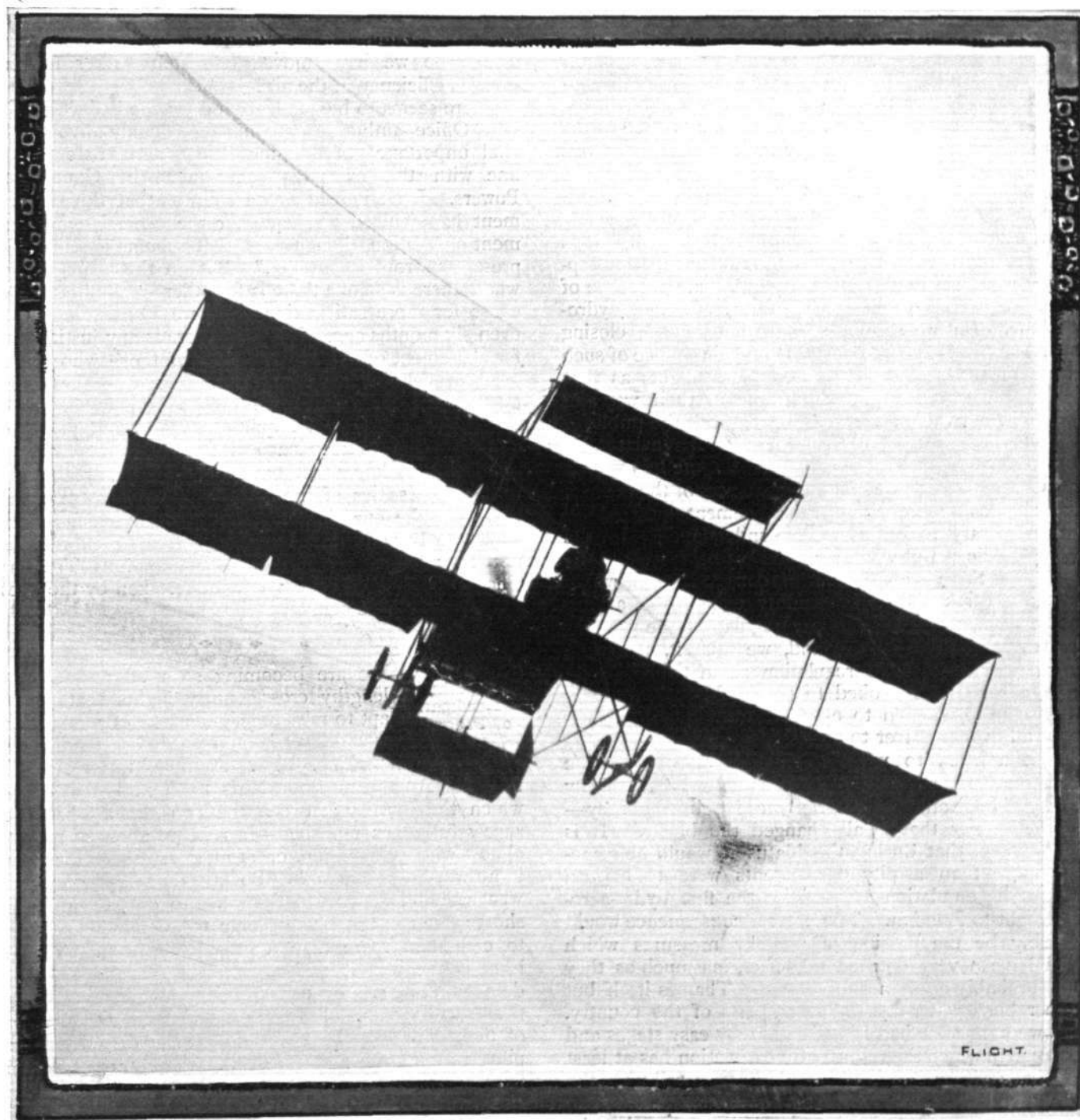
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Mr. J. L. Travers making a fine banking on the Farman biplane at the London Aerodrome, Hendon.

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EDITORIAL

Flying Over the Thames.

There seems to us to be two separate aspects of the action of the Royal Aero Club in forbidding flights over the Thames similar to that achieved by Mr. McClean a fortnight ago. If the prohibition stood simply by itself, we should be rather inclined to doubt the wisdom of so drastic a ruling as is implied in the ruling, though at the same time we should have to admit that all things being considered there were some grounds at least for the decision. As it is, however, the prohibition is merely of a temporary and tentative nature and taking all the circumstances into account we think the Club has done very wisely. A conference is to be held at which the police, the Home Office, the Army and Navy, and the Club itself are to be represented to consider the whole question of flights over the Thames and, if they are to be allowed at all, under what restrictions. No date for this conference has yet been announced, but it is understood that it will not be long before it meets. Before we go any farther, we feel that we ought to compliment the R.Ae.C. on the still further proof of the confidence of the authorities which is furnished by the constitution of this conference to be.

We have already said that we think the Club's action is a wise one. We should be the last to approve of any action which might by any possibility be construed as unduly restrictive or calculated to hinder the development of what will in all probability eventuate into one of the most useful of all types of aircraft, the hydro-aeroplane. But we cannot see in what way the closing of the Thames is likely to operate to the hindrance of such a development as we desire to see. Such flights as that of Mr. McClean are quite admirable in their way and have a distinct value from what we may call the publicity point of view—not the advertisement of the aviator, let us hasten to say, for that would be to impute less worthy motives than we know actuate the pioneers of the science, but that valuable publicity of the movement itself which is so necessary to bring proper understanding to the general public. But whatever their value, it cannot be denied that there is an element of danger in them which we do not think should be unduly encouraged at the present moment. Under proper regulation the worst of that danger would disappear, and, we take it, it is just this necessary element of regulation which the proposed conference may be looked to to supply. As it is, it would seem to be open to everyone owning any jurisdiction at all over the river to make whatever regulations he likes—it appears to us it was really because of the restrictions suddenly enforced by someone in authority that Mr. McClean came to grief on his return journey—and the sooner that is all changed the better. It is quite obvious that during the hiatus it would be something more than a pity if accidents were to happen through the emulation aroused by the first hydro-aeroplane flight to London. The natural consequence would inevitably be the passing of panicky measures which would have a very detrimental effect, inasmuch as they would probably apply not only to the Thames itself but to other busy waterways in other parts of the country. What we want above all is legislation by easy stages and legislation in which the ruling body of aviation has at least an active advisory part. We are doing very well up to the present, and we certainly do not blame the R.Ae.C. for taking any reasonable action at all in order that its standing with the powers that be shall remain unimpaired.

COMMENT.

The Royal Flying School.

Last Saturday saw the official opening of the Central Flying School at Upavon, when the Commandant, Capt. Paine, R.N., and Lieut.-Col. Cook, R.G.A., the Assistant-Commandant, received the first detachment of pupils, who numbered seventeen. At present the school equipment consists of seven machines which include two Avros, two Shorts, one M. Farman, a Bristol and a Henry Farman. These in the meantime should permit of some very useful flying practice, though they are obviously insufficient for the permanent needs of the school. As a matter of fact, it is intended that the permanent establishment should be at least twenty machines or thereabouts, but it has not yet been decided precisely what types are to be favoured. Quite naturally, the Army Council is awaiting the results of the Trials now in progress before coming to any definite decision as to types. So we have moved one step farther forward towards efficiency in the air!

There seems to be good ground for the belief that the War Office authorities are now thoroughly alive to the vital importance of bringing British aerial defence into line with the measures being taken by Continental Powers. It is indeed broadly hinted that the Government has evolved a scheme for the general encouragement of aviation, though what that scheme is remains at present "wropt in myst'ry." But on the principle that where there is smoke there is fire, there really does seem cause for more satisfaction than we were able to feel even six months ago. Not that there is any justification for abatement of effort on the part of those who realise what a revolution has been brought about by the advent of the aeroplane. We are only at the beginning of things yet, and it will require sustained and persistent effort if we are to keep pace with our rivals. But it is something to know that our authorities are really alive to the necessities of the case and are doing their level best to make our air-service a thoroughly efficient one. What we have to watch now is that their efforts shall not be rendered futile by a parsimonious Treasury. That is the duty which must be undertaken by the Press and people of the country.

Another Landmark of Progress.

We are becoming so used nowadays to lengthy cross-country flights that we are apt to miss the significance of many which would have been regarded a year or two ago as epoch-making. For example, the really fine flight of Audemars from Paris to Berlin—the first in which the journey between the two capitals has been successfully accomplished—has been allowed to pass almost without mention, or at most has been dismissed in a three-line paragraph. So fast do we progress that what would have moved the world to enthusiasm but a short while ago has now become too commonplace even to command more than a passing mention. That at least is the way it strikes us. Here is the aeroplane demonstrating day by day that it is coming nearer and nearer to the stage of development when its limitations of flight will only be governed by the capacity of the pilot to endure—and no one takes any notice of it. Short as has been the history of the aeroplane, it has already achieved to the position of the thing that is recognised and accepted as one of the ordinaries of our everyday life. Truly, we live in a wonderful age.

THE MILITARY COMPETITIONS.

By Our Technical Editor.

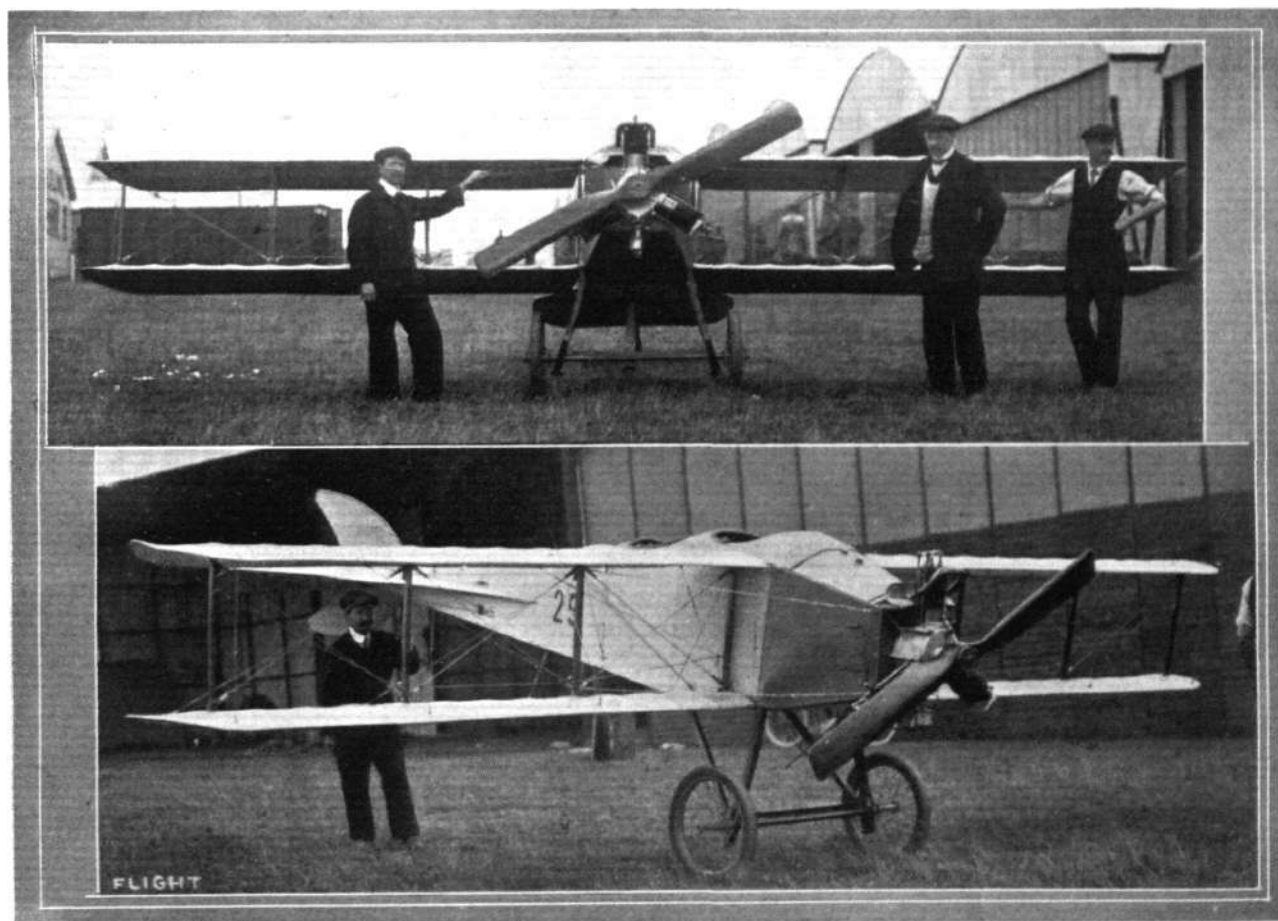
INCIDENTAL REFLECTIONS ON THE MILITARY TRIALS.

IN any undertaking having the breadth of interest that is associated with the Military Trials, there arise a number of incidental reflections that hardly assume direct importance in the bare record of events, yet are, like Mrs. Whistler's unfailing hospitality at the George Hotel, Amesbury, of considerable moment withal to a proper appreciation of a great occasion. In its greater meaning, the purpose of the trials is to extend the insight of the authorities into the future possibilities of a new arm of defence, and, as such, there is no aspect too insignificant to be worthy of notice. One that must have occurred to all is the necessity of establishing certain communication between pilot and passenger, so that the latter—who, presumably, in his capacity of observer, should be in command of the craft—may direct operations. At present the pilot is the master of the situation, and in the teeth of a 80 m.p.h. blast, it is not easy for the observer to explain precisely where he would like the machine to go. There has already been invented a small telephone for attachment to the helmet, which works quite satisfactorily, I understand, but if the telephone in mid-air has any of the peculiarities of the ordinary ground instrument, it must be open to some objections, to say the least. For comfort and convenience in this regard, there can hardly be any question of the advantage of the cabin-body, which for the moment finds its apotheosis in the Avro design, and, to judge by the flying of the machine to date, there are no indications that it is otherwise than efficient. There is, of course, the question as to whether such bodies permit of the full range of observation that is desirable, but this is a question for the military authorities to decide, and in any case I see no reason why this form of construction should not afford more latitude in this respect than is available from some of the unprotected seats that are in use on other machines.

The broad question as to the necessity for carrying an observer for military purposes has been tacitly answered in the affirmative,

because of the preponderance of opinion on that side when the subject was first broached last autumn, but it is growing very apparent that the observer will need just as much air training as the pilot, and that in the long run the pilot, himself a military officer, may prove the more useful man, even when working in a dual capacity. Experience and constant practice may be taken as essential to the efficiency of the aerial observer, for not only does the strangeness of the position at first distract the attention of the passenger from the physical objects below, which it is his duty to observe, to the mental condition within, which it is his duty to ignore, but those same objects take on such an entirely different appearance when viewed from above that the most familiar sights on earth may escape wholly unnoticed when viewed from mid-air. It is difficult, for instance, to say whether two men riding along a road are on horseback or afoot, and I have heard of an officer being unable to detect a squadron of cavalry that was pointed out to him on the occasion of one of his earlier flights. These things, of course, are all a question of training, and as such are merely related to the factor of time. It is just as well, however, for the public at large to realise that the new arm, like a new gun, is of small service to the nation unless it is placed in the hands of those who are thoroughly experienced in its use. For this reason the proper establishment of the Royal Flying Corps and its thorough organisation must necessarily be a matter of the greatest possible moment.

It is quite certain that it is useless to expect officer observers to return with accurate information unless properly trained to obtain it, and if the observer is going to form a class as distinct from the pilot, then it is of the utmost importance that every endeavour should be made to facilitate the scientific execution of his work. In this connection an interesting suggestion that has been put forward is the possibility of adapting the periscope to aeroplanes, so that



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The Piggott Biplane, at Salisbury Plain, entered for the Military Aeroplane Trials.—This is the smallest machine of its class yet built. It has a span of 25 ft. 6 ins., and an area of 100 sq. ft. to support 300 lbs. weight, exclusive of pilot, fuel and oil. It is a beautifully made little machine, but obviously quite a miniature in actual size. There is accommodation for pilot and passenger, both of whom look out over the main planes.

the observer might concentrate his attention on the detail of the picture thrown on the plate instead of peering over the side of the machine at the country generally. This would tend also to combine the observation powers of pilot and passenger by leaving the general direction in the hands of the pilot and the particular investigation to the passenger, who would report immediately to the pilot whether it was necessary to manoeuvre for a closer inspection of the spot. Whatever comes of the idea, however, there can be no doubt that it is worth someone's while to take it up seriously, and to proceed as quickly as may be with the construction of a suitable instrument.

In a large measure, of course, this question of the necessity or otherwise for the observer and of the part he must play, vitally affects the design of the machine. Shall he, for example, sit side by side with the pilot or in tandem? and if the former is desirable, as some have suggested, it would be interesting to have more opinion on the subject of whether the arrangement is inimical to steadiness in flight on moderate span machines. If the question of armament arises, as indeed it must, a new complication is introduced by reason of the necessity of giving the gun a wide range of firing angles, and in this connection especial interest attaches to the performances of those machines in the trials that are well known to be capable of lifting more than the specified load.

There is no doubt that aeroplane construction has entered on a new phase with these trials. The machines, even when they do not go to the length of the Avro enclosed body, are

altogether more like vehicles than anything that has been produced before, and it is clear that the lesson of the motor car, with its modern wind-screen and general protection for occupants, will find its parallel in the evolution of the flying machine. There is, too, a marked change in the constructive detail of most machines, which in many cases seems to me to be rather overdone. Formerly, a pilot was expected to risk his life on a single piano wire, now he is given a collection of great cables any one of which looks strong enough to hang the machine. Surely there is need for moderation in this direction, too. The change from solid drawn steel wire to stranded cable seems to me to be a sound departure for the reason that a solid drawn wire is liable to sudden and complete fracture, whereas a cable seldom parts at once. A reasonable factor of safety should, therefore, be considered sufficient, otherwise the design lacks balance and the machine is handicapped from the start. One thing that is, however, of the utmost importance in the use of cable is to inspect it regularly and with the greatest care. Cables used in mine haulage are inspected daily, and a very few broken strands is sufficient for the rope to be condemned. Although only the outside strands fray through, it is most unlikely that the same strand breaks twice, consequently an occasional loose end in several feet may easily mean a completely faulty cable if repeated throughout a very great length. Many of the wires used in aeroplane construction are quite short, but the warping wires are generally of some length and in this connection the above remark should be borne in mind.

CLASS DESIGN IN THE MILITARY TRIALS.

WHEN the aeroplane manufacturers and other interested people attended at the House of Commons some months ago to confer with Col. Seely, then Under-Secretary of State for War, about the Military Trials, much point was made of the necessity of knowing exactly what the authorities required in order that they might design accordingly. And, as there is now such an extraordinary difference between the machines entered, it may not be without interest to endeavour to investigate the results obtained by measurement against an arbitrary standard based as far as possible on the figures cited in the official conditions.

Hitherto my philosophical commentary on the technology of the event has had for its purpose an endeavour to appreciate each machine on its own merits by trying to ascertain how far it was making good use of its engine power. Aeroplanes, in common with

all other forms of machinery, must submit to the efficiency test as the ultimate criterion of design, and the data provided by the present trials affords an invaluable opportunity that it would be absurd to lose. Nevertheless, the performances of the machines vary widely among themselves, and if it were true that each had been especially designed for the purpose of doing well in this particular trial then the variation is certainly sufficiently curious to call for some explanation and comment. In any case, alternative lines of thought, seriously pursued, frequently expand the understanding, and it is obviously worth while to try and get all we can out of the present occasion.

Let us begin with the question of speed. Para. 6 of the revised regulations published in FLIGHT, May 25th, states as an essential: "Attain an air-speed of not less than 55 m.p.h. loaded." Then



Three views of the 75-h.p. Chenu-motored Martin-Handasyde mono. in the Army Competitions.

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para. 14 of the original regulations, which was confirmed by the supplementary communique, says that a desirable attribute is "Flexibility of speed; to allow of landings and observations being made at slow speeds if required, while reserving a high acceleration for work in strong winds." Now it is obvious that if the first condition stood unqualified by any other clause in the document, that the faster the speed the greater the merit in the official eye. This, of course, may be the case for aught I know, but having regard to the expressed desirability of speed-range, and trying to extract the spirit of the law from its written letter, I should certainly be inclined to regard the specified figure of 55 m.p.h. as a sign-post not to be ignored. In a word it is tantamount to saying that 55 m.p.h. is a speed that should be covered by one end or the other of the speed-range of the machine, and that anyone who has designed to do this should not wholly be put in the shade by another who has been solely concerned with getting 55 m.p.h. at least. On this basis, a capacity for flying 5 m.p.h. below 55 m.p.h. is worthy of as many marks as the ability to fly 5 m.p.h. faster, provided always that the speed of 55 m.p.h. itself is embraced in the range available.

Thus, to particularise, let us subtract 55 from the maximum flight-speed, and also deduct the minimum flight-speed from 55 in the various performances already available:—

Hanriot 1 ...	75.2 - 55 = +20.2; 59.9 - 55 = -4.9; 20.2 - 4.9 = 15.3
Hanriot 2 ...	75.4 - 55 = +20.4; 66.6 - 55.0 = -11.6; 20.4 - 11.6 = 8.8
Blériot 4 ...	61.1 - 55 = +6.1; 55 - 52 = +3; 6.1 + 3.0 = 9.0
M. Farman 22	55.2 - 55 = +0.2; 55 - 37.4 = +17.6; 0.2 + 17.6 = 17.8
F. Dep. 26...	69.1 - 55 = +14.1; 59 - 55 = -4.0; 14.1 - 4.0 = 10.1
Cody B. ...	72.4 - 55 = +17.4; 55 - 48.5 = +6.5; 17.4 + 6.5 = 23.9
Blériot 5 ...	58.9 - 55 = +3.9; 55 - 40 = +15; 3.9 + 15.0 = 18.9
Bristol M. 14	70.5 - 55 = +15.5; 68.3 - 55 = -13.3; 15.5 - 13.3 = 2.2

The final figures would then serve as a basis of marking for speed, and in the same way we may investigate the climbing capacity of the machine by taking the specified 200 ft. per minute as a basis. Thus:—

Hanriot No. 2 ...	333 ft. per min. - 200 = 133 = 1.52 m.p.h. surplus
Blériot No. 4 ...	250 " - 200 = 50 = .57 " "
M. Farman No. 22	207 " - 200 = 7 = .08 " "
Fr. Dep. No. 26	333 " - 200 = 133 = 1.52 " "
Cody biplane ...	286 " - 200 = 86 = .98 " "
Hanriot No. 1 ...	363 " - 200 = 163 = 1.84 " "
Blériot No. 5 ...	235 " - 200 = 35 = .4 " "
Bristol No. 14 ...	200 " - 200 = 0 = .0 " "



Mr. Harold E. Perrin, Secretary of the Royal Aero Club who is assisting the judges in the Army Aeroplane Competitions, and Mr. Arnold Thurston, of the Bristol Co., waiting in the plough for the carrying out of this test by Prevost on the French Deperdussin.



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TWO NOTABLE DESIGNERS AT SALISBURY.—On the left, Mr. Coanda, who is responsible for the new Bristol monoplane; on the right, Mr. Handasyde, the designer and constructor of the Martin-Handasyde machines.

In the last column, the excess rate of climb over the 200 ft. per min. required has been converted to miles per hour, so that it may be an expression in the same units as the effective range of speed.

There is nothing whatever to use as a guide by which the relative advantage of speed and climbing might be reduced to a common basis, that is to say, as to whether an increase of 1 m.p.h. in the rate of climbing has as much merit as an increase of 1 m.p.h. in the range of speed.

But apart from arbitrary considerations altogether, there is the internal economy of the machine itself to be considered, which makes the power expended on 1 m.p.h. climbing six times as much, or thereabouts, as the power expended on 1 m.p.h. flying speed, with the same weight in flight.

Now the useful load under the rules is 350 lbs., and is common to all machines, big and small, for which reason the weight of the machine itself can be ignored, in this particular investigation, as incidental to the carrying of the useful load. Thus, by regarding the weight as unity, the numerical values assigned to the speeds may be supposed to have the dimensions of power, provided that allowance is made for the difference between lifting the whole weight vertically and flying against one-sixth of the weight as horizontal resistance.

The gliding angle of the machines being different, the resistances per unit of load vary also, but, since a good gliding angle is regarded as meritorious according to the regulations, a very simple way of allowing for it will be to ignore it in the calculations by assuming that all machines have the value 1 in 6. Thus, a machine that does better than 1 in 6 will have manifested the difference in increased speed for which it has already received credit; alternatively, a machine with a poor gliding angle will have had to fight against so much the more resistance in flight, and will thus automatically have established its own handicap. If there is any further merit due to a good gliding angle, it can only be assigned arbitrarily and according to some personal opinion.

Applying the above basis to the figures available we get:—

	Effective Speed Range.	Climb.	Combined Speed and Climb.
Hanriot No. 2	$8.8 \div 6 = 1.47$	1.52	2.99
Blériot No. 4	$9.0 \div 6 = 1.50$	.57	2.07
M. Farman	$17.8 \div 6 = 2.80$	.08	2.88
French Dep.	$10.1 \div 6 = 1.67$	1.52	3.19
Cody biplane	$23.9 \div 6 = 3.90$	.98	4.88
Hanriot No. 1	$15.3 \div 6 = 2.55$	1.84	4.39
Blériot No. 5	$18.9 \div 6 = 3.15$	.4	3.55
Bristol No. 14	$2.2 \div 6 = .37$	.0	.37

The interpretation of the above table is that the Maurice Farman Blériot (5) sociable and the Cody score heavily in speed range, while the Hanriots and the French Deperdussin gain most marks for their climbing. It is interesting to compare these results with those published last week, in which the weight and engine power were taken into account for the purpose of gaining some idea of the efficiency of the machine as a whole, as distinct from its utility for a specific purpose, which is the object of the present discussion.

Thus, if, in the following table, E_1 is the ratio of V times the resistance deduced from the gliding angle, to the h.p. available, where V is the maximum flight speed, and E_2 is E_1 plus the percentage h.p. used for the height climbs then we have:—

	E_1 %	E_2 %	X.
Hanriot No. 2	81	105	168
Blériot No. 4	74	85	198
M. Farman	58	75	75
French Dep. No. 26	80	103	138
Cody biplane	59	75	85
Hanriot No. 1	73	99	172
Blériot No. 5	Weight unknown		
Bristol No. 14	Gliding angle unknown		216

In the above the Hanriot (2) and the Deperdussin score as very efficient machines on speed, while the Farman and Cody lose. The same remarks apply when the climbing is added to the absolute speed under this head but come to the fore directly the range of speed is taken into account, as it is in the preceding table.

Before dismissing the subject, there is still one other factor that ought to be taken into consideration, namely, fuel and oil consumed. Fuel is latent power, and if one machine can accomplish on a gallon what another requires two gallons to perform, there is presumably an advantage in the more economical, which ought not

to be overlooked. In this calculation it will, perhaps, be fairer to add the lubricating oil to the petrol, since both are necessary to the running of the engine, particularly because the oil is the more expensive material to buy, and in some cases the least easy to obtain in emergency. If we allow that the numerical values in the preceding tables have the dimensions of power, as explained, then it is not without reason to introduce the fuel factor by establishing a ratio between the values given for combined speed and climb and the fuel used per hour in gallons. Thus:—

	Speed Range and Climb.	Fuel and Oil.	Speed Range and Climb, Fuel and Oil.	X.
Hanriot No. 2	2.99	$8.65 + 2.1 = 10.75$	28.0	168
Blériot No. 4	2.07	$5.35 + 1.7 = 7.05$	29.4	198
M. Farman	2.88	$7.0 + .73 = 7.73$	37.2	75
French Dep.	3.19	$8.4 + 1.3 = 9.7$	32.8	138
Cody biplane	4.88	$9.0 + .42 = 9.42$	52.0	85
Hanriot No. 1	4.39	$8.0 + 2.4 = 10.4$	42.0	172
Blériot No. 5	3.55	$6.3 + 1.7 = 8.0$	44.5	

It is interesting to compare the results thus obtained with the constant X (i.e., wt./h.p. \times wt./sq. ft.), and to observe how the machines with the greatest amount of reserve power (lowest X) would appear to score most under the trial conditions, regarded solely from the point of view of doing the useful work required and ignoring the flying of the machine as a whole, save for the remarkable exceptions afforded by the Blériot sociable and Hanriot No. 1, which score so heavily on their flexibility of speed. Nevertheless, there is some support for the prevalent idea of the practical utility and economy of the large sail area biplanes as vehicles of aerial transport and the efficiency of the modern streamline monoplane, regarded as complete machines, in the especial fields of higher speed flight and climbing. In conclusion it may be convenient to summarise the machines under the various heads that have been considered, thus:—

X.	Speed (max.). m.p.h.	XV (max).	E ₁ . %		
Bristol 15	222	Hanriot 1,2, 75	Bristol 15 16,200	Hanriot 2	81
Bristol 14	216	Bristol 15 73	Bristol 14 15,200	Dep. ...	80
Blériot 4	198	Cody ... 72	Hanriot 1 12,900	Blériot 4...	74
Hanriot 1	172	Bristol 14 70	Hanriot 2 12,700	Hanriot 1	73
Hanriot 2	168	Dep. ... 69	Blériot 4... 12,100	Cody ...	59
Cody ...	85	Blériot 4... 61	Dep. ... 9,550	Farman ...	58
M. Farman	75	Blériot 5... 59	Cody ... 6,140		
		Farman ... 55	Farman ... 4,140		

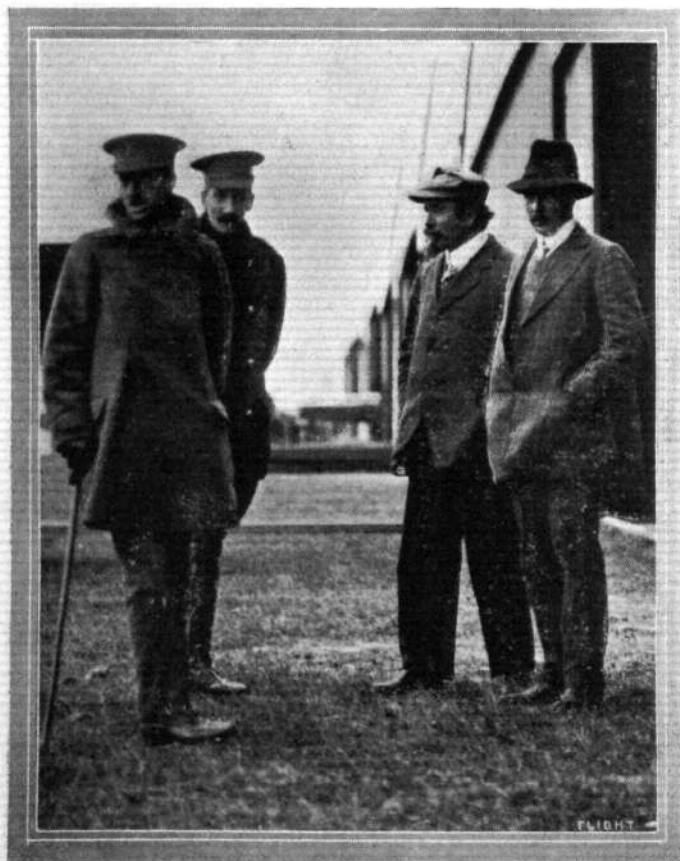
E_2 , %	Speed Range and Climb.	Fuel and Oil per Hour.	(Speed Range and Climb): (Fuel and Oil). %.
Hanriot 2 105	Cody ... 4'88	Blériot 4... 7'05	Cody ... 52
Dep. ... 103	Hanriot 1 4'39	Farman ... 7'73	Blériot 5... 44
Hanriot 1 99	Blériot 5... 3'55	Blériot 5... 8'0	Hanriot 1 42
Blériot 4 85	Dep. ... 3'19	Cody ... 9'42	Farman ... 37
Cody ... 75	Hanriot 2 2'99	Dep. ... 9'7	Dep. ... 33
Farman ... 75	Farman ... 2'88	Hanriot 1 10'4	Blériot ... 29
	Blériot 4... 2'07	Hanriot 2 10'75	Hanriot 2 28

These figures are, of course, very much of the rough and ready order, but as the process of their calculation is given it is hoped that they may give rise to discussion, and that something useful may come of this attempt at analysis. Reverting to the subject at issue, viz., class design, it must not be forgotten that some of the machines, such as the Farman, Cody, and perhaps others, were never specially designed for the trials at all. Inasmuch, however, as the entrants in question used their everyday standard machines, they showed a good judgment and common sense that should be a lesson to some of those who may lose the opportunity of their lives by trying to get special models into action at the eleventh hour.



U.S. Navy and Hydro-aeroplanes.

IN response to some requests from manufacturers, the U.S. Naval authorities have issued a schedule of requirements for naval aeroplanes. This sets forth a good many points which should be borne in mind by the designer and manufacturer. It stipulates that the machine should fly for four hours, averaging 50 m.p.h., and attain a maximum speed of at least 55 m.p.h. in a series of ten runs over a measured mile, five with and five against the wind. These tests must be made with full load, i.e., fuel and oil for four hours' flight, two passengers weighing together 350 lbs., and wireless, &c., equipment. The machine will be required to turn in a circle of 400 yards diameter, make a spiral ascent to 1,500 ft., and to glide from a height of 500 ft. a horizontal distance of 2,500 ft. The machine must also be capable of riding out a 20-mile breeze on open water with engine stopped.



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Waiting on the weather at the Army Aeroplane Trials on Salisbury Plain.—From left to right: Major F. H. Sykes, Brig.-Gen. D. Henderson, Mr. S. F. Cody, and Mr. Pixton.

A DAY BY DAY DIARY.

WEDNESDAY, AUGUST 14TH.—Shortly after 5 o'clock this morning a strenuous effort was made by four more of the competitors to get through their three-hour qualifying flight, which includes the necessity of attaining an altitude of 4,500 ft., of continuing to fly at not less than 1,500 ft. for a total of three hours' duration, and of starting off with the machine duly charged with fuel and oil for a 4½ hours' journey. Incidental to the test, an automatic record is taken on a barograph of the rate of ascent for the first 1,000 ft., and either then or on another occasion the pilot must show that he is capable of climbing at the rate of 200 ft. a minute from the ground to that altitude. The little instrument used for this purpose is an extraordinarily neat affair, and can be carried quite conveniently in the pocket. It is a flat rectangular case containing a small window at one end, behind which is a visible chart over which moves the recording pen. A very ingenious clockwork apparatus causes the pen to be lifted off the paper except for a mere instant of time at each half minute, when it allows the pen to settle for sufficient time to make a dot against the scale that registers the altitude. Thus, the instrument is set in action when the machine starts its flight, and if within that portion of the scale representing the first 1,000 ft. of altitude there are more than ten dots, signifying ten intervals of half a minute each, the machine has climbed at a less rate than 200 ft. a minute and consequently must try again.

Of those who went out this morning for their three hours' test, Pixton alone succeeded in completing the required duration on his Bristol monoplane No. 15—an excellent performance, seeing that the pilot had only taken over the machine last Monday. Macdonald, on the Vickers monoplane, tried hard to get through also, but had to come down when less than half an hour remained, as the wind was rising rapidly to a serious gustiness. For the same reason, Gordon England, on the Bristol biplane No. 12, and Lieut. J. C. Porte, on the British-built Dep., were also unable to complete their qualifying flights; and the latter had some difficulty in landing, although happily it was effected without damage. A more alarming incident occurred in connection with the landing of Capt. D. Connor of the Royal Flying Corps, who broke up the undercarriage of the Army Nieuport monoplane and jammed a few splinters in amongst the engine cylinders of the rotary Gnome in a manner that caused the result to be an extraordinary puzzle to know how some of them got there. The pilot was quite unhurt.

During the early calm, Perreyon took the second Blériot No. 5, which is the sociable machine, over to Knighton Down, there to undergo its speed trials. The Bristol monoplane No. 14, in the hands of "Busteed of the cloud alleys" likewise journeyed thither for the same purpose. Bielovucic's Hanriot No. 1, went for its gliding tests and Raynham, who is appointed to the Coventry Ordnance biplane in succession to Sopwith, went out for practice.

The high wind that came on about breakfast time continued through the forenoon, and was still blowing hard about 5 o'clock in the evening when Perreyon took out the Blériot tandem for a wind test. A dauntless pilot in matters of this sort, his only concern was lest he might lose the roof off the shed, as the Coventry Ordnance did one memorable day last week.

Thursday. Wind and rain held back all competitors from attempting the tests, so the flights by army officers of the Royal Flying Corps afforded the only interlude. A diversion in the form

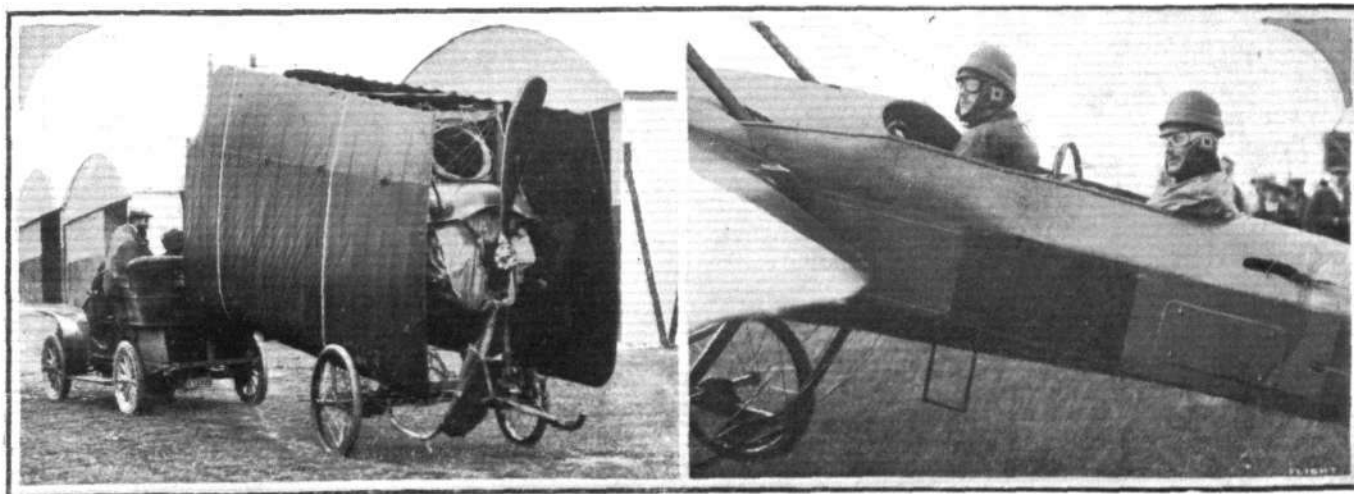
of rifle practice at a captive balloon, towed by a motor car was brought to a premature conclusion by the escape of the balloon, and so once more a day's work has been invisible to the outside world. Some of the government "factories," by courtesy called hangars, temporarily on loan to aeroplane constructors, still continue to be hives of industry and much of real interest ought to result therefrom if the bad weather continues long enough. The A.B.C. engine specially built for the Flanders monoplane arrived yesterday and is in process of being fitted to-day. Being not only brand new, but having come down from the works without even so much as a preliminary bench test, it is more than likely to suffer from the common complaint of engines hereabouts, namely, lost revolutions. There is a wit, who shall be nameless, who dearly wanted to post up among the lost and found notices that support the results pasted on the windows of the judges' office, an announcement to the effect, "lost, a few hundred revolutions," and to add thereto the names and amounts of those who have been so plaintively seeking them during the past ten days.

In the evening, a little before six, Perreyon, who flew the Blériot tandem yesterday, took out the Blériot sociable for a similar performance. He had a noticeably busy time keeping the machine in order, and hearts came up as the machine dipped down in the treacherous passage over Fargo Wood. All was well, however, and a quarter of an hour later he had brought one machine back safely, and taken out the other for a change.

Friday. The Avro biplane is back in its shed, having returned from Manchester, whither it was sent for repairs after the bad smash that attended Lieut. Parke's landing from an excellent flight on Wednesday, August 7th. The repair is a piece of smart work for which A. V. Roe and Co. deserve real credit, and all are undoubtedly pleased to find the machine back again and apparently in good trim. It is one of the most interesting machines in the trials, and having a Green engine is one of the few wholly British machines that were entered. Indeed, with the sad loss of the Mersey and the mysterious seclusion of the Aerial Wheel, the Avro remains the only machine in this class.

It was not until half past six in the evening that any machine came out of doors, but then, the weather being a little quieter, Sippe and Perreyon took their respective aeroplanes, the Hanriot and the Blériot, for trial flights. It was unpleasant weather, for although the wind was down to twelve miles an hour, a Scotch mist prevailed which made flying a joy to few. Somewhat later, Bielovucic took out the other Hanriot, and flew over to the plough, whereon he landed so delicately that the machine ran for more than a hundred yards without stopping. Subsequent rising from the sticky furrow, however, proved a more difficult matter, but with some manoeuvring was at length accomplished.

Saturday. At last some progress has been made in the weighing of the machines, an operation of the utmost importance, seeing that it is by no means uncommon for the actual measurement to be two or three hundred pounds out as compared with the maker's estimate. The officials have been chary of weighing the machines in the wind, owing to the sensitiveness of the wing surfaces to slight gusts, but the most careless of results thus obtained would probably be found nearer the mark than the figures that have been otherwise supplied. The weighbridge has been erected outside



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THE MILITARY COMPETITIONS AT SALISBURY.—On the left the French Deperdussin monoplane completing the transport test. On the right Prevost and Capt. Dawes starting out for a flight on the same machine.

the sheds on a vacant plot and is somewhat exposed. It consists of three platforms, two of which take a wooden girder weighing 44 lbs. for the support of the front wheels of the machine. The third platform supports the tail skid. In this way, it is necessary to make three simultaneous readings of the balances, which are contained in boxes forming part of the weighbridges. There is some slight oscillation at the best of times, but a little care is all that is required to get the sliding balance weight on to a notch that will cause the beam to rise and fall periodically, thus indicating that the weight selected is a fairly good mean between the extreme loads on the scale.

Another interesting operation carried out by the officials in the absence of flying and continuance of bad weather, was the investigation of the range of view obtained by the observer from each machine. For this purpose, the floor of the hangar was marked out like a chess-board, and the observer having been provided with a numbered chart was required to indicate thereon the squares that he could see from his appointed seat.

Apart from these things, the transport test of the Hanriot No. 1 comprised the only real business of the competition.

Monday. A private trial of the resuscitated Avro biplane at a quarter past four this morning gave those who saw it much satisfaction, but failed to belie the continued unpleasantness of the weather, which kept several anxiously-waiting competitors indoors. Even the flag did not fly at the masthead, and, in the respite from official doings, the officials themselves took the opportunity of checking the calculations about the machines that had flown. Lieut. Parke's little journey in the air served to demonstrate the convenience of the cab-body for flying in rain, just as his unfortunate accident tended to show its security. Although it was raining hard, the pilot was conscious only of a mist, and felt nothing at all of the raindrops. That they were there to feel, however, may be judged from the fact that the edge of the propeller was quite scored by contact with them, which is not so surprising as it might seem, seeing that the peripheral speed of a modern air propeller is several hundred miles an hour. Anyone who has motored in the wet knows how uncommonly solid a rain drop can feel against the face, even when travelling at a moderate speed.

Tuesday. After another morning of rain there was an unexpected interval of comparative calm about tea-time this afternoon, indeed it is generally when a wearied humanity, exhausted with doing

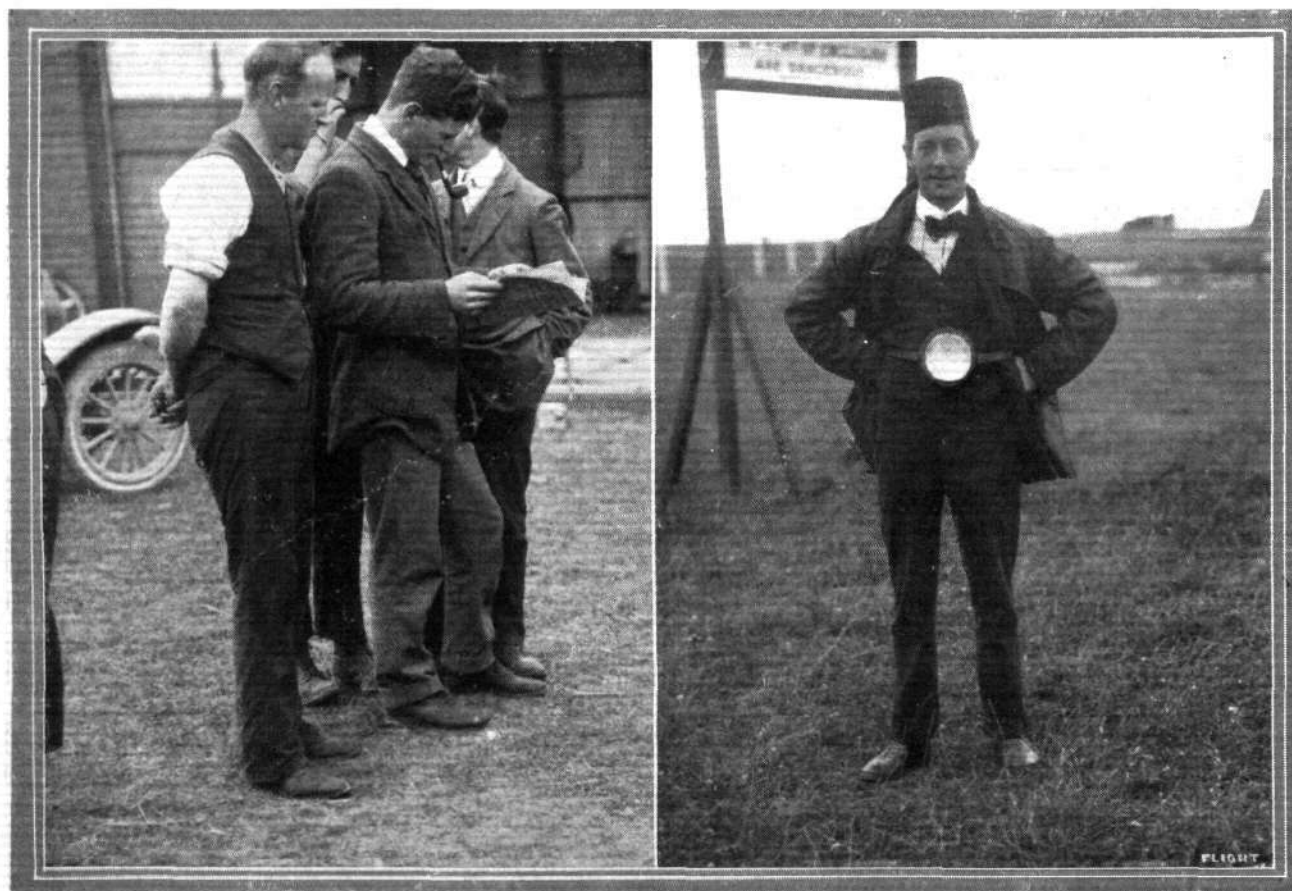
nothing, sets out on the trail to the *Daily Express* tent—which is one of the incidental features of the meeting, and has been nothing short of a godsend as the sole source of physical sustenance in the immediate vicinity of the hangars—that someone invariably takes out his machine to do a wind test or a trial flight. The tea tent is not conveniently situated for observation, consequently you may see anxiously expectant journalists bobbing in and out whenever a buzzing from afar, which as likely as not is a motor cycle toiling up the hill, causes them to believe that a flight of some sort has just begun.

On this occasion, Vedrines was quickly aloft for his climbing test, and then out came the newly constructed Handley Page monoplane, with its bird-like wings and immense body. It was flown by Petre, and from the little evidence already available it seems to be in a fair way to justifying its claim for stability, which forms the basis of its design.

It is not without interest to remark that Mr. Handley Page's view of the principle of the crescent-shaped wing that he affects, which is that the air near the shoulder of the wing tends to have an outward flow by virtue of its existence in a region of positive pressure. By retreating the wing tip the air thereunder does in fact have a slightly outward flow, and consequently a side gust, which ordinarily lifts a wing by producing an increased resultant relative velocity, is, in this case, compounded with a diagonal vector having an opposing direction, so that the resultant is, therefore, reduced, and the wing does not tend to lift. On the opposite side of the machine there would be, by the same argument, an increased lifting force, but for the fact that the wing is shielded so much by the body.

Distant darkness of the horizon, foretold of a forthcoming storm, and long before anyone might have completed a three hours' flight it was again raining in torrents; in fact it came down worse than ever it had done before.

Wednesday. In a 15-mile-an-hour wind, Pixton, who is really excelling himself on the Bristol monoplane No. 15, which he had never even touched before last Monday week, put up a splendid speed test of 73 m.p.h. maximum and 58 m.p.h. minimum. This is a startling performance in the light of the trial of No. 14, for it shows an increase on the slow speed of nearly 26 per cent., and is a remarkable performance for a monoplane with a value of X in the order of 220.



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AT THE ARMY COMPETITION.—The first copy of FLIGHT in camp is secured by Busted.

Mr. C. P. Pizey at the Army tests on Salisbury Plain, his headgear being reminiscent of his trip to Turkey. The centre ornament is not a Turkish Order, however, but just a barograph.

MILITARY AEROPLANE TRIALS. PROVISIONAL RESULTS UP TO AUGUST 20th.

[In all calculations the corrected h.p. is used instead of the maker's h.p. when there is any difference.]

No.	Name.	h.p.	Motor.	Pilot.	Corrected h.p.	Cu. ins. per h.p.	Weight.	Weight + h.p.	Area.	Weight + area.	$X = \left(\frac{W}{H.P.} \times A \right)$	Petrol.			Oil.		Ratio. Petrol : oil.	Climbing 1,000 ft.			3 hours.	Speed.				Plough.	Stopping.	Wind.		Gliding.				With climb added.	Assembly after road transport.	Finished.		
												In tank.	Per hr.	Per h.p. hr.	In tank.	Per hr.		h.p.	%	Fast.		Slow.	Decrease.	Increase.	Maximum.			Minimum.	Slope.	Thrust.	Power at max. velocity.	Per cent.						
							lbs.				X	gals.	gals.	pts.	gals.	gals.		m. s.	ft/min.	h.p.	%		%	%		yds.	m.p.h.	m.p.h.	One in	lbs.	h.p.	E_1	E_2	h.m.	men.			
1	Hanriot	100	Gnome	Bielovucic	80	12.0	1921	24.0	269	7.15	172	42.5	8.0	.72	12.1	2.4	3.3	2.45	364	21.2	26.5	yes	75.2	59.9	20.4	25.6	yes	120	31	21	6.6	291	58.4	73.0	99.5	0.30	5	yes
2	Hanriot	100	Gnome	Sippe	80	12.0	1898	23.7	269	7.05	168	41.0	8.65	.78	11.2	2.1	4.2	3.0	333	19.2	24.0	yes	75.4	66.6	11.7	13.2	yes	119	31	25	5.9	322	65.0	81.5	105.5			
3	Vickers	70	Viale	McDonald			220																															
4	Blériot Tan.	70	Gnome	Perreyon	60	11.3	1536	25.6	198	7.75	198	27.0	5.35	.61	8.2	1.7	3.15	4.0	250	6.5	9.2	yes	61.1	52.0	14.9	17.5	yes	60	28	15	5.6	274	44.6	74.3	85.1	0.37	4	yes
5	Blériot Soc.	70	Gnome	Perreyon	60	11.3	297					27.0	6.3	.72	9.5	1.7	3.77	4.15	235			yes	58.9	40.0	32.0	47.3		45	30	26	5.3							
6	Avro	60	Green	Parke	70	7.8	1800	25.7	335	5.38	138																											
7	Avro	60	ABC	(engine not ready)																																		
8	Breguet	110	C.U.	Moineau	7.2	2150	19.5	465	4.62	90																												
9	Breguet	110	C.U.	(not arrived, owing to accident while flying from France)																																		
10	Coventry	100	Gnome	Raynham	80	12.0	1950	24.4	350	5.44	133																											
11	Coventry	110	Chenu	Raynham			2050	20.5	300	5.83	110																											
12	Bristol Bi.	100	Gnome	England	80	12.0	2326	29.0	387	6.0	174																											
13	Bristol Bi.	70	Mercedes	(not flown)			5.5	2296	32.7	387	5.92	193																										
14	Bristol Mon.	80	Gnome	Busteed	75	9.6	1848	24.6	210	8.8	216	39.0	8.0	.85	8.0	1.7	4.7	5.0	200	11.2	14.9	yes	70.5	68.3	3.1	3.2		31	15									
15	Bristol Mon.	80	Gnome	Pixton	75	9.6	1871	25.0	210	8.9	222																											
16	Flanders	100	ABC	(engine not ready)			2000	20.0	400	5.0	100																											
17	Martin H.	75	Chenu	Bell	95	6.9	1800	24.0	310	5.8	110																											
18	Aerial Wheel	—	NEC																																			
19	Mersey	45	Isaacson	Fenwick			1150	25.6	400	2.9	74																											
20	Brit. Dep.	100	Gnome	Vedrine	80	12.0	2000	25.0	270	7.4	185																											
21	Brit. Dep.	100	Anzani	Porte			7.5	2000	20.0	270	7.4	148																										
22	M. Farman	70	Renault	Verrier	72	5.9	1931	26.8	700	2.8	75	35.0	7.0	.78	3.5	.73	9.75	4.50	207	12.1	16.8	yes	55.2	37.4	32.2	47.6	yes	64	29	14	6.8	284	41.7	58.0	74.8			
23	Kny...	100	Mercedes	(not arrived)																																		
24	Lohner	120	A.-D.	(not arrived)																																		
25	Weston H.	—	—	(not arrived)																																		
26	French Dep.	100	Gnome	Prevost	80	12.0	1868	23.4	315	5.9	138	38.5	8.4	.75	7.2	1.3	6.3	3.0	333	18.8	23.5	yes	69.1	59.0	14.6	17.1	yes	73	29	13	5.4	346	64.0	80.0	103.5	1.43	4	yes
27	French Dep.	100	Gnome	(not arrived)			1400	14.0	248																													
28	Handley P.	70	Gnome	Petre	60	11.3	1450	24.2	240	6.1	148																											
29	Piggott	35	Anzani	Parr			5.9	700	20.0	100	7.0	140																										
30	Cody Mon.	120	A.-D.	(not arrived, damaged in previous flight)																																		
31	Cody Bi.	120	A.-D.	Cody	5.9	2277	19.0	500	4.5	85	42.0	9.0	.6	4.2	.42	21.4	3.30	288	19.8	16.5	yes	72.4	48.5	33.2	49.4	yes	27	14	6.2	368	71.0	59.0	75.5					
32	Borel	80	Gnome	(not arrived)	75																																	

N.B.—No. 6 was damaged, but has been repaired.
Nos. 28, 29 just finished construction.

Nos. 8, 11 and 17, engine trouble delays progress.
Nos. 12, 15, pilots only appointed on August 12th.

No. 19 has been wrecked.

Nos. 20, 21 purposely delayed, to assist No. 26 to finish.

Summary of Performances.

	X	V	XV	R	G	E_1	E_2
Hanriot 1	172	75.2	12,900	25.6	6.6	73.0	99.5
Hanriot 2	168	75.4	12,700	13.2	5.9	81.5	105.5
Blériot Tan. 4	198	61.1	12,100	17.5	5.6	74.3	85.1
Blériot Soc. 5	—	58.9	—	47.3	5.3	—	—
Bristol Mon. 14	216	70.5	15,200	3.2	—	—	—
Bristol Mon. 15	222	73.0	16,200	26.0	—	—	—
M. Farman	75	55.2	4,140	47.6	6.8	58.0	74.8
Fr. Dep.	138	69.1	9,550	17.1	5.4	80.0	103.5
Cody	85	72.4	6,140	49.4	6.2	59.0	75.5

The accompanying table summarises some of the results achieved by the machines that are furthest forward in the trials. In the column-headings:—X is the product of weight per h.p. by weight per sq. ft., and a high value implies a claim for high efficiency; a low value implies a high reserve of engine power. V is the maximum flight speed obtained. R is the speed range expressed as percentage increase on the slow speed. H is the percentage h.p. used for the height climb. G is the best mean glide. E_1 is the ratio of V-times the resistance deduced from the gliding-angle to the effective h.p. available. E_2 is E_1 plus H.

Since the publication of a similar table last week, corrections have been made as the result of the official weighing of the machines. Also, other competitors have succeeded in completing more of the tests in the interim. The most striking new feature is the very high speed range of the Bristol monoplane No. 15, Hanriot No. 1, and the Blériot sociable No. 5, the latter having a range in the same order as that of the Maurice Farman and the Cody, which, for a monoplane is certainly remarkable, the highest values for internal efficiency, based on speed, climbing, and total weight in flight, are obtained by the monoplanes in this list as shown in the columns E_1 , E_2 , but elsewhere in this issue is an investigation into the economy with which the various machines transport the useful load of 350 lbs., which is a common trial condition for all entrants. Also the speed range above and below 55 m.p.h. is taken as a standard, and account is also taken of the fuel and oil consumed. On this basis, the Cody biplane comes to the fore in a very marked manner, and the Farman occupies a much better position. The Hanriot No. 1 and Blériot No. 5 monoplanes mentioned above, however, still score heavily by virtue of their speed range, on which a premium has arbitrarily been placed in the calculation. The Bristol monoplanes have not yet made their gliding tests, and are, therefore, omitted.

AUGUST 24, 1912.

FLIGHT

FROM THE BRITISH FLYING GROUNDS.

Royal Aero Club Eastchurch Flying Ground.

OWING to continued bad weather, as far as flying is concerned, nothing was done worth recording during the past week, and in the sheds nothing either on account of absence at military trials of most of the builders here, and one or two being away on holidays.

Brighton-Shoreham Aerodrome.

WEATHER all last week has been too bad for much flying. The pupils of the South Coast Flying School have had to snatch occasional hours between the storms for practice.

On Saturday, M. Salmel arrived on his Blériot monoplane, and gave exhibition flights to an appreciative audience. Monday, M. Salmel, after giving exhibition flights to a considerable number of visitors, flew from the aerodrome over the front at Brighton, and then returned to the aerodrome.

Members of the committee of the Aero Club on Tuesday gave a large picnic on the grounds, entertaining their visitors at lawn tennis, croquet, billiards, and other amusements, at which numerous aviators were present, including M. Salmel and his wife, but there was too much wind for flying.

Brooklands Aerodrome.

OWING to the exceptionally bad spell of weather prevailing all over the country, Brooklands, like nearly all other places, has suffered in consequence.

At the Bristol School a little work was got in on Tuesday, Mr. Merriam taking up for tuition two Turkish officers, Capis. Fazal and Abdullah, then up with Capts. McDonald, Styles, Lieuts. Parker, Loutcliffe, Pen Gaskell, Prettyman and Grenville. Lieut. Arthur was up behind Capt. Miller and Lieut. Parker. Mr. Pickles was flying well with Lieut. Loutcliffe up behind.

Mr. Merriam was out on monoplane, followed by Mr. Bettington, who gave a little excitement to those present by running into the railings in front of sheds, doing considerable damage to the machine he was on.

Messrs. Summerfield and Barnwell were both flying solus in good form.

On Wednesday morning a lot of Bristol pupils were out solo flying, all doing exceptionally well, and most of the following who were practising are now ready to take their *brevets*: Major Ashmore, Messrs. Barnwell, Summerfield, Capt. Brabazon, Lieuts. Playfair, Wanklyn, Joubert, and Gould. Messrs. Cheesman and Darracq also solus flying.

Wednesday evening weather prevented much work, but Mr. Merriam took up Prince Cantacuzene for one short trip.

Friday morning Mr. Merriam took up five Turkish officers for tuition, Capts. Fazal, Abdullah, Lieuts. Azez, Tethi, and Mehmed Ali; also several other pupils, but weather too bad to permit pupils solus flying.

Lieut. Parke was out on Wednesday evening with the Avro machine, flying well in a rotten wind.

Capt. Stott was out also on the Vickers monoplane on Tuesday and Friday mornings.

Eastbourne Aerodrome.

OWING to the unfortunate weather which has prevailed during the past fortnight, very little outdoor work has been possible. Lieut. Murray and Mr. Foggin, who have been doing so well on the 25 Anzani, were promoted to the 28-h.p. on Monday morning, when an early start was made. They both made excellent flights

and showed good judgment in landing. Rough weather again set in on Monday afternoon and continued until Saturday evening, when Lieuts. Bone and Murray and Mr. Foggin were able to put in about half an hour's practice. Mr. Pizey arrived on Saturday evening to test the new Bristol biplane which the Company have purchased for tuition work. Unfortunately the machine was not quite ready so he had to postpone the test until Sunday evening, when he made two short flights. The engine, however, was pulling very badly and he was unable to do either himself or the machine justice. By the time the engine had been put right it was too dark for flying, so Mr. Pizey kindly consented to stay until Monday, but Monday turned out bad and he was obliged to leave without giving the machine a further test. Mr. Hammond has now joined the Company and will take the pupils in hand as soon as the weather moderates. The repairs to Mr. Fowler's machine are nearly finished and he hopes to have her out by the end of the week.

Farnborough (R.F.C.)

TUESDAY last week in the evening Major Burke arrived back from Salisbury on BE 1, with Lieut. Herbert as passenger. He came over at 12 o'clock flying well in rather a gusty wind, and he was out flying until dark. Airship "Gamma" returned after staying the night at Whitechurch, owing to bad weather. She came out again about 9.30 p.m., and did half hour's cruising over searchlight tattoo in Government House grounds, making good landing in the dark.

Wednesday, Lieut. Longcroft on BE 1 made several long flights, reaching a good height each time, also taking passengers. Major Burke on BE 1 for several flights.

New Maurice Farman arrived from Hendon, piloted by Verrier, with passenger, the machine later out doing rolling test. In the evening Major Burke and Lieut. Longcroft on BE 1 for several flights each in very gusty wind. Airship "Gamma" out about 9.30 p.m., two flights over Government House, dropping money prizes at the tattoo.

Weather too bad for flying Thursday. Friday, Major Burke and Lieut. Longcroft made several flights each on BE 1, both flying well. No flying Saturday owing to wet weather. On Monday Major Burke made several flights early on BE 1.

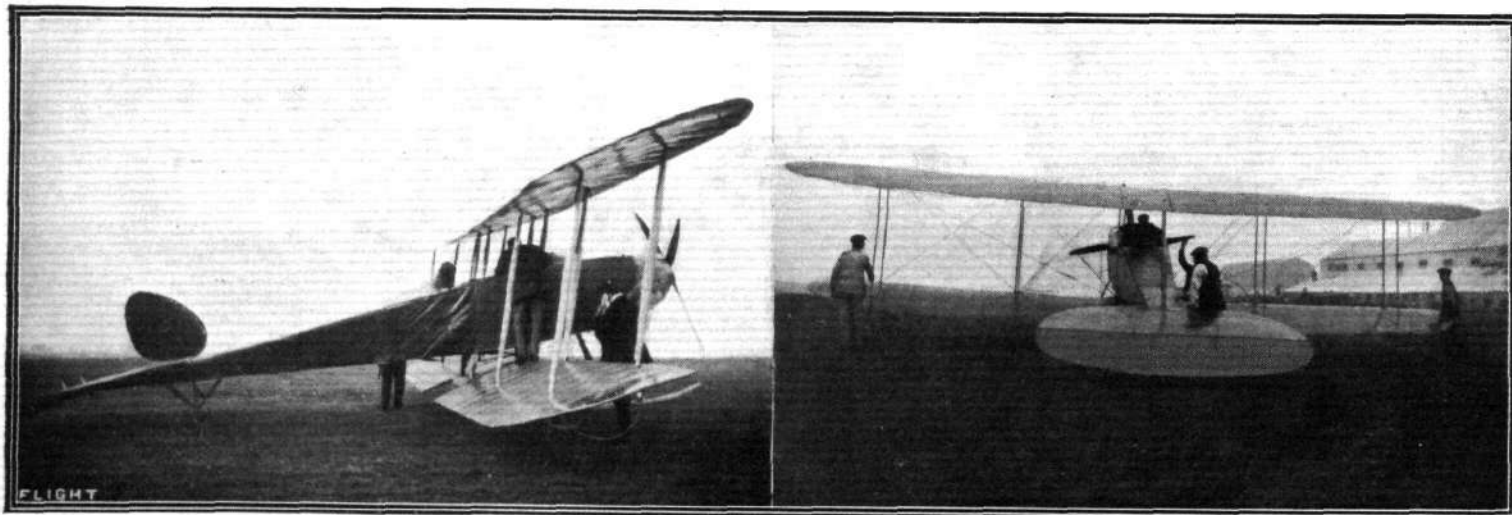
Freshfield, Lancs.

THE death of poor Fenwick has cast a gloom over the Freshfield Aerodrome, he was very much liked there and greatly regretted, always a very hard worker and clever engineer, and had a good future as an aviator.

Last Monday week was a bad day. On Tuesday morning Mr. Higginbotham got out early, with mechanic as passenger, and had about an hour's flying, including a trip to Southport and back, passing through rain at Ainsdale and also at the same place on the return journey; very foggy at Southport. Near the aerodrome a heavy rainstorm came on, and just after landing a waterspout passed out at sea, about three miles away, and travelling fast down channel. Afterwards too bad all day for flying, and also on Wednesday. On the ground it was calm, but up aloft an east wind, very puffy, blowing so strong that it took twice the usual time to reach Southport, but the return was well above the legal limit.

London Aerodrome, Collindale Avenue, Hendon.

Grahame-White School.—School started work Monday last week at 5.50 a.m. under the supervision of Messrs. Turner and



A couple of snapshots of Mr. de Havilland and one of the Army biplanes, BE 4, showing the machine from the side and from behind.

Blackburn. Mr. Turner, after making a short test flight on the Sommer, handed machine over to Mr. Wynne, who proceeded with circuits at a good height, finishing a fine exhibition by a *vol plané* from 250 ft. Lieut. Stopford followed with a series of good steady circuits. Then Baroness Schenck and Capt. Halahan made several straight flights on No. 7 machine, the latter showing considerable ability in handling the controls, these being his first solo flights. Mr. Turner finished the morning's work by taking up Mr. Marrick, a new pupil, for a flight on the Howard Wright.

Wind blowing a gale all Tuesday, but on dropping somewhat in the evening, Mr. Turner took up Capt. Halahan for a flight. Shortly afterwards school was commenced by Lieut. Allen doing straight flights on No. 7, followed by Messrs. Kinhardt, Mateycka, and Wilson doing straights, accompanied by Mr. Blackburn. The rest of the evening's work consisted of circuits by Mr. Wynne, straight flights by Mr. Fuller, and Mr. Turner taking up Mr. Marrick as passenger.

School opened at 6.30 a.m. Wednesday. Mr. Blackburn making a flight on No. 7, to test the air, after which, Mr. Wynne did some excellent circuits on the same machine, and Baroness Schenck, Capt. Halahan, Lieut. Allen, and Mr. Fuller all did good straights alone. Messrs. Wilson and Marrick did straights under the guiding hand of Mr. Blackburn. In evening school out again for about half an hour, Mr. Wynne doing circuits, and Lieut. Stopford straight flights; after which the weather became unfit for school work.

Climatic conditions unfavourable for flying Thursday, most of the day being devoted to new pupils receiving theoretical instruction in the sheds.

Machines out at 5 a.m. Friday, but after a test flight by Mr. Blackburn rain stopped all possibility of school work.

Saturday weather too bad for school work, but the usual exhibition and passenger flights made during the day, as reported elsewhere.

In spite of the doubtful weather on Sunday there was a good number of people at Hendon to witness the fine exhibition of flying which took place, Mr. Lewis Turner starting at 3.30 promptly on the Grahame-White biplane and doing some fine banked turns, switchbacking, &c. This was followed at 4.5 by a 10 minutes' flight by Mr. Nardini, and then Mr. Desoutter at 4.50 went up for 30 mins. At 5.50 Mr. Blackburn gave an exhibition flight of about 15 mins., during which time Mr. Turner was up with a passenger. At 6 o'clock Mr. Nardini was again giving the spectators a fine exhibition for about 20 mins., after which Mr. Turner went up again to give an exhibition flight for 15 mins. before taking up another passenger. The last exhibition flight was by Mr. Blackburn, starting about 7 o'clock, and lasting for about 10 minutes.

Aircraft Co. School.—On Tuesday last week, Pierre Verrier tested a new Maurice Farman biplane destined for the British Army, similar to the one which has done so well in the Military Trials. He started for Farnborough, carrying Lieut. Stopford as passenger, at six o'clock in the evening, but was forced to return, as he ran into a thunderstorm some five miles away from the aerodrome. He left Hendon the next morning at 7.15, arriving at Farnborough at 7.50. He carried Lieut. Stopford, who was much struck by the steadiness of the machine despite a gusty wind. He then performed the necessary tests, afterwards taking up Mr. Green, of the Aircraft factory, as passenger.

Blériot School.—M. Gaudillon out early on Monday last week on LB 1 with tail well up doing short hops. Next day school unable to go out owing to bad weather; but Wednesday was quite a busy day, several pupils being able to do quite a lot of practice during early morning and evening. Mr. Hall had out LB 2 in the morning and was doing circuits, and Mr. Sacchi was flying straights on same machine. Mr. Clappen did similarly, and we were very glad to see that the temperature of his pedal extremities had not been lowered in the slightest degree, following his recent unmediated atterissage. Mr. Reilly had his first practical lesson, and was rolling on LB 1, and shows himself quite quick on the controls. In the evening Messrs. Sacchi and Clappen were doing straights on LB 2, and Mr. Hall, prior to going for his *brevet* on the first favourable occasion, was practising right-hand turns at about 40 ft. on the same machine. M. Gaudillon was rolling well on LB 1.

Thursday was a blank day for pupils. On Friday Mr. Sacchi did a straight on LB 2, but the then rising wind prevented further school work. No school work possible Saturday owing to inclement weather.

Deperdussin School.—No flying Wednesday week; wet and windy. Next morning Mr. Andrews one turn on taxi, then ran into railings at far side of ground. Broke propeller, sheared bolts holding engine-plate to front end of fuselage, slight damage to leading edge at extreme tip of off-side wing. Gill four circuits on racer. In the evening Brock and Harrison three turns each on *brevet* machine. Bad side wind. Gill straight on *brevet*.

On Friday, Lieut. Bourke, Mr. Andrews, rolling on taxi, made

excellent progress. Gusty side wind, too bad for pupils to fly. Gill trial straight on No. 1 machine. In evening, Lieut. Chinnery two circuits on *brevet*, Mr. Brock and Lieut. Harrison one turn each on *brevet*, both doing well. Lieuts. Tucker, Hawker, and Bourke, and Rowley and Mr. Andrews all rolling on taxi, all making excellent progress.

Saturday the 10th, Lieut. Chinnery, Mr. Brock, and Lieut. Harrison all doing circuits on *brevet* in morning, making neat landings. Lieuts. Tucker, Rowley, Bourke, Hawker, and Mr. Andrews all rolling on taxi, making good progress, and ready for Taxi No. 2. Mr. Andrews succeeded in getting taxi off the ground and made straight flight of about 50 yards. Mr. Gill four circuits on No. 1.

Monday last week Brock and Harrison doing excellent circuits and figures of eight on *brevet* machine in morning, afterwards Harrison took his *brevet* in good style on the *brevet* machine, reaching a height well over 200 ft. Lieuts. Tucker, Bourke, and Mr. Andrews each did three excellent trips on taxi. Gill four circuits on racer. No flying in evening; too windy.

No flying all Tuesday—too windy—but on Wednesday morning Brock got in two figures of eight on *brevet* machine; then practising landing, very good; ready to take his ticket. Lieut. Bourke and Mr. Andrews and Mr. Spratt on taxi, all three doing well. Mr. Spratt's first attempt, progress good. Gill four circuits on racer. In evening Brock practising straights and landing to a given mark on *brevet* machine (landings good). Lieut. Bourke, Mr. Spratt and Mr. Andrews out rolling on taxi, one turn each, all doing well. Gill 1½ circuits on racer.

Thursday, no flying.

Friday morning, Mr. Brock practising landings on *brevet*, Cadet Robinson making straight flights on same, both good landings. Lieuts. Tucker and Bourke, and Messrs. Andrews and Spratt and Phelps all rolling on taxi. Gill two circuits on racer.

No flying Saturday.

Monday morning, Cadet Robinson several good straight flights on *brevet* machine (landings good). Lieuts. Tucker and Bourke, Messrs. Andrews and Phelps all rolling on taxi No. 2. Gill two circuits on racer.

No flying all Tuesday, too windy.

W. H. Ewen School.—By taking advantage of the early hours of the morning the pupils have been able to get in a fair amount of practice during the last week. On Monday, 12th, Capt. O'Brien and Mr. H. James were doing nice straights, while Messrs. J. H. James and Edmund were making steady flights and good landings from 30 ft. Mr. Sutton was out on the *brevet* monoplane, but slightly damaged the chassis in turning too sharply. The pupils were out early on Wednesday morning, and Capt. O'Brien and Mr. H. James were getting into the air. Mr. J. H. James was flying well and practising turns. Messrs. Edmund and Ware were on the *brevet* machine flying very nicely. All the pupils were again out on Friday, and considerable flying practice was put in. There was too much wind on Sunday for the usual school work, but Mr. Ewen brought out the 60-h.p. two-seater Caudron biplane, and took up half a dozen of the pupils in turn for instructional flights. Mr. S. Freshney, of Lincoln, was afterwards taken for a trip by Mr. Ewen. **Salisbury Plain.**

Royal Flying Corps.—Tuesday evening of last week was ideal for out-door work, and the R.F.C. put in a good deal of useful flying. Major Burke on the BE 1 with a passenger, Lieut. Herbert, took off at 6.5 p.m. for Farnborough, rising to a good height and flying very steadily in a stiff wind. Lieut. Conner was out testing the 70-h.p. Nieuport monoplane. Major Moss and Capt. Boar were out on the Henry Farman, and de Havilland put up an excellent show on BE 2 at a good height, banking and doing very sharp turns right and left. Lieut. Mackworth was on BE 4, and Capt. Ranleigh on B 3 got away very quickly to a fine height, flying well around the camps.

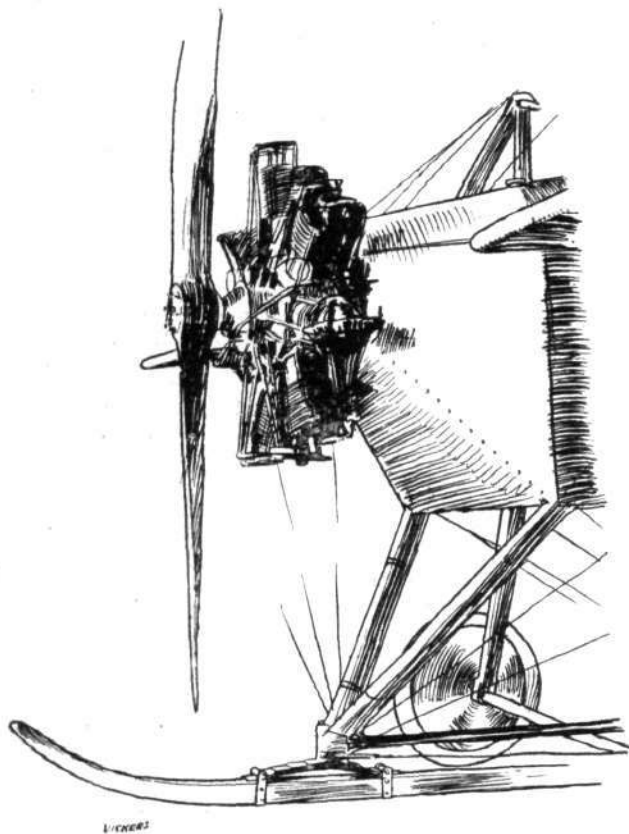
Early on Wednesday morning Capt. Hamilton did a trip on the Deperdussin, and then Lieut. Fox took her over and made a good flight round the camps. Lieut. Conner then got on the 70-h.p. Nieuport monoplane, and was flying well until reaching Fargo Camp, when the wind got very tricky. On landing he had the misfortune to break the undercarriage of his machine on the very rough ground, but the pilot was uninjured. Major Brooke-Popham made several good useful flights on BE 2, scouting around the Plain, flying very high, and doing some fine turns. No outdoor work was done until Thursday evening, owing to unsettled weather, when Lieut. Fox made a trip on biplane BE 2 in a very stiff wind and rain, making one circle.

Weather continued to be bad until Monday morning, when Capt. Hamilton got in a little flying on his Deperdussin monoplane, making a beautiful flight around the camps at a fine height; also, Lieut. Mackworth followed on BE 4, put in two trips, doing well, when the weather upset their flying, and the pilots were forced to put away their machines.

THE VICKERS MONOPLANE.

LIKE the previous productions of this firm, Vickers monoplane No. 6, is essentially a steel-built structure. The body is wedge-shaped, pointed in front and flattening away horizontally towards the rear. Unlike the general run of monoplane bodies, it is wider than it is

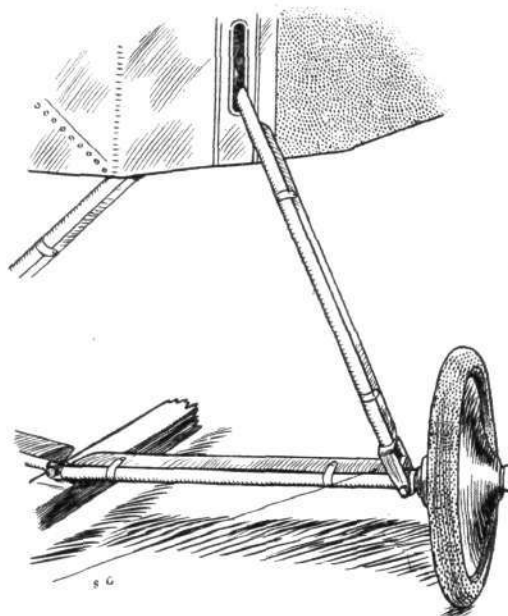
of universally jointed vertical levers operating the elevators and the wing warping, and pivoted foot-bars for steering. Great ingenuity is displayed in the design of the undercarriage. Its type is distantly related to that of the Nieuport. It is exceptionally strong and flexible, and has the additional advantage of offering little head-resistance. A single central skid is attached to the body by means of two pairs of struts in V's. The bases of the V's are not rigidly attached to the central skid, but are joined flexibly thereto by the interposition of two laminated steel springs, an idea that, we believe, was first originated by the designers of the German Albatross biplane, one of the cleverest exhibits at the last Paris Aero Show. The way in which the wheels are mounted is shown in one



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THE VICKERS MONOPLANE.—Sketch showing the engine-mounting and landing-skid.

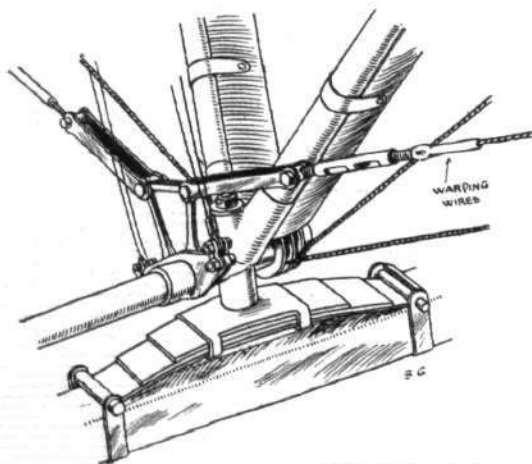
deep in order to seat pilot and passenger side by side. In plan view the body does not taper towards the tail, so in retaining its extreme width it serves in the capacity of a stabiliser, and renders unnecessary the application of any fixed horizontal surface to perform that function. The attitude of the machine in flight is varied by two balanced elevators. To the front of the body is bolted a 70-h.p. radial air-cooled Viale motor, which drives direct a Chauviere propeller. Inside the cockpit the occupants are each provided with controls, which are in the form



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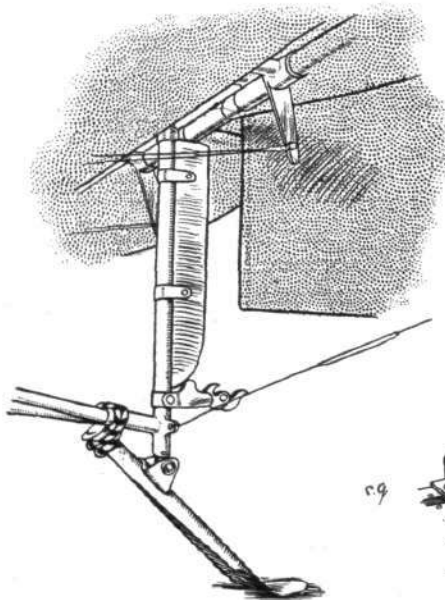
THE VICKERS MONOPLANE.—The landing-chassis.

of our sketches. Shocks are absorbed in the same manner as on the R.E.P. monoplane. The oblique compression strut from the wheel is attached to a sliding collar which moves vertically up and down one of the vertical members of the fuselage. Movement of this collar is opposed by rubber springs in tension. Some 6 inches above the skid, and parallel to it, is arranged a long rotating tube which carries two sets of cranks. The set at the rear operates the wing warping, those in front are connected to the controlling levers. The wings are, outwardly, of more or less conventional type of construction, and span 34 ft.



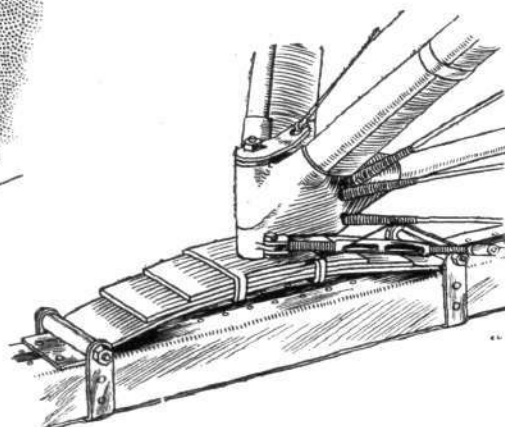
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THE VICKERS MONOPLANE.—Showing how the front chassis-struts are connected to the central landing-skid, and insulated therefrom by a laminated steel spring.



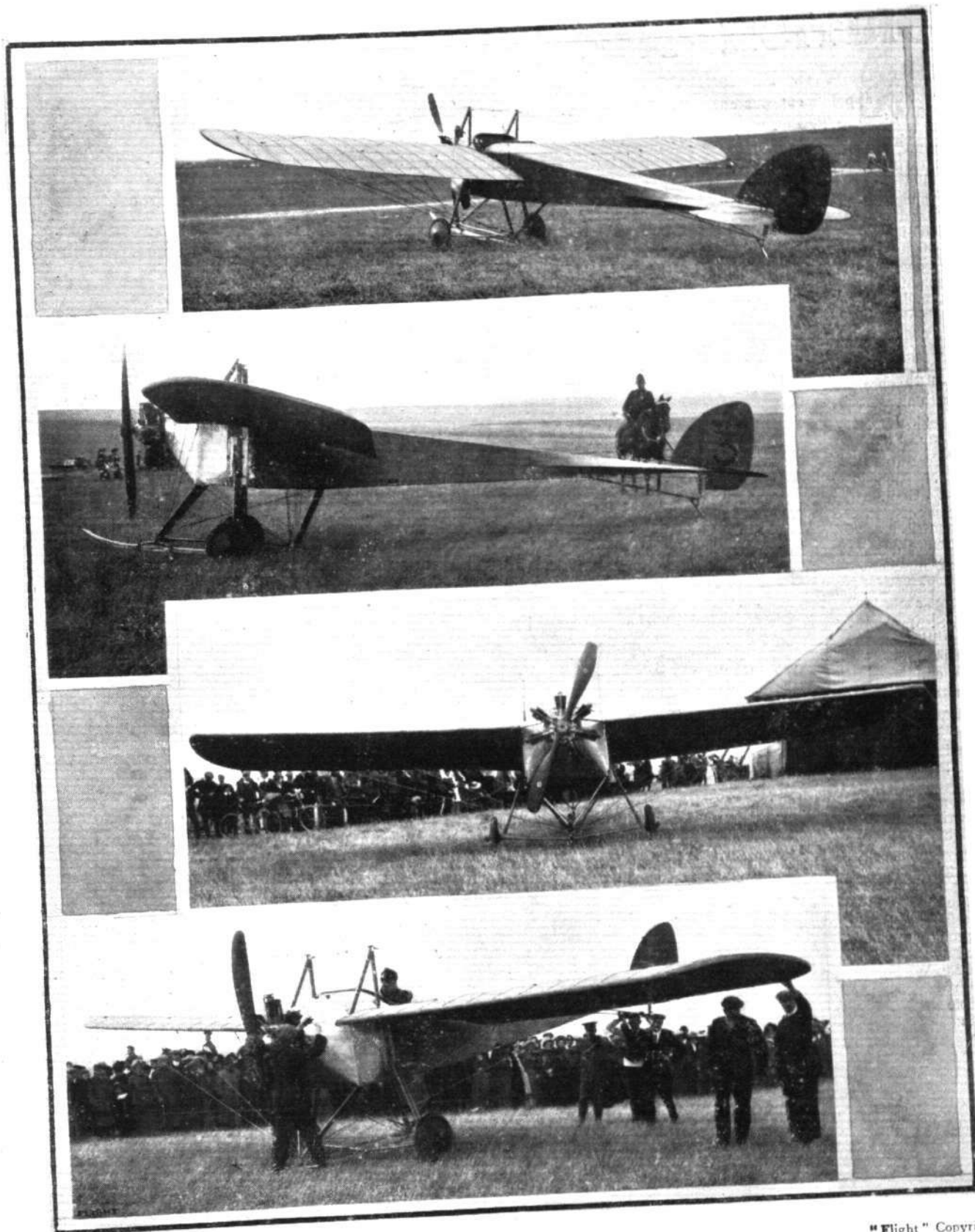
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THE VICKERS MONOPLANE.—Details of the tail, showing the tail-skid and release-catch.



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THE VICKERS MONOPLANE.—The mechanism that operates the wing-warping. Note the laminated steel spring that insulates the chassis-strut from the skid.



"Flight" Copyright.

The Vickers monoplane, fitted with 70-h.p. Viale engine, piloted by Macdonald in the Army Aeroplane Competition on Salisbury Plain.

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Trials with the "Hansa."

THE Zeppelin dirigible "Hansa," which has been making some good trips from Hamburg, met with a mishap on the 16th inst., preparing to start for Ruegen, one of the ballonettes bursting. No great damage was done, however, and on Sunday last the airship went for a long cruise along the Elbe to Cuxhaven and over the North Sea, altogether covering about 200 kiloms. in 3½ hours.

Firing Tests at Aircraft.

SEVERAL circumstances combined to render abortive the tests in firing at the Aerial Craft on Salisbury Plain last week. When the tests were about to begin, the hawser anchoring the captive balloon to the motor lorry snapped, and the balloon disappeared in a cloud. A second balloon was brought out and inflated, but the envelope split, and the trials were abandoned.

BRITISH NOTES OF THE WEEK.

ROYAL FLYING CORPS.

THE following appointment was announced by the Admiralty on the 14th inst. :—

Lieut. G. V. Wildman-Lushington (Royal Marines), to the "President," for course of aviation at Central Flying School, to date August 17th.

The following were announced on the 20th inst. :—

Commander E. A. D. Masterman, to the "Actæon," additional, for command of Naval Airship Section of Royal Flying Corps, to date on joining.

Lieutenants—N. F. Osborne, to the "Actæon," additional, as squadron commander, Naval Airship Section, Royal Flying Corps; R. Fitzmaurice, to the "Actæon," additional, for W T duties with aircraft, undated; C. L. Courtney, to the "Actæon," additional, for Naval Flying School, for flying course; F. L. M. Boothby and H. L. Woodcock, to the "Actæon," additional, for Navy Airship Section, for airship course at Farnborough.

Engineer Lieut. E. F. Briggs, to the "Actæon," additional, for Naval Flying School, for charge of machinery and overseeing duties with aircraft, to date August 19th.

The Central Flying School Opened.

THE first course of instruction in military aviation commenced at the Central Flying School at Upavon, Salisbury Plain, on Saturday. The instructors are Capt. Fulton, R.A., Capt. Gerrard, R.M.L.I., Capt. Broke-Smith, R.E., and Lieut. Longmore, R.N. Capt. Paine, R.N., is commandant of the school, Lieut.-Col. Cook, R.G.A., assistant commandant, and Capt. Cordner, R.A.M.C., the medical officer. The equipment includes two Farmans, two Shorts, two Avros and one Bristol.

The Lindsay Campbell Fund.

ONE of the first responses in answer to the appeal issued by Col. H. S. Massy on behalf of the widow and three children of the late Mr. Lindsay Campbell, was a cheque for five guineas from No. 3 Squadron of the Royal Flying Corps, of Salisbury Plain, per Capt. Allen.

The Daily Mail Demonstrations.

ON Wednesday of last week, M. Salmét gave three exhibition flights at Broadstairs, during which he made wide sweeps over the surrounding country, and went over to Westgate and Margate. At Norwich, Mr. Hucks gave two exhibitions, one in the afternoon and the other in the evening. The machine went up in the twilight, and in mid-air Mr. Hucks turned on the electric light, thus providing a very pretty spectacle, the machine having powerful searchlights at the head and tail, while the planes were also illuminated. Mr. J. E. Travers left Cowes on the Paulhan-Curtiss hydro-aeroplane for Eastbourne and put into Brighton for petrol. In trying to get away again the propeller was caught by the waves and broken, thus causing a delay of some hours. Mr. Noel who left Cowes a few minutes after on the Farman hydro-aeroplane reached Eastbourne safely, but the undercarriage of the machine was damaged after alighting by the heavy sea. On Thursday M. Salmét flew over to Whitstable, and then across Kent to Folkestone. In the South Mr. Travers was still weather-bound at Brighton, and it was impossible for Mr. Noel to do any flying at Eastbourne. On Friday M. Salmét gave several very spectacular exhibitions at Folkestone, the air-currents above the Lees tossing the machine about in a remarkable manner. Mr. Travers succeeded in getting the Paulhan-Curtiss hydro-aeroplane from Brighton to Eastbourne, but in the evening he found the aeroplane would not lift very well. On Saturday morning M. Salmét flew along the south coast from Folkestone to Shoreham, affording the visitors at Hastings, Eastbourne, and Brighton a good view. Mr. Louis Noel was able to fly round the coast from Eastbourne to Margate, taking an hour and a half for the journey. Birmingham also saw some flights on a Farman hydro-aeroplane, M. Fischer making two ascents from Edgbaston reservoir. Unfortunately, in starting a third flight a strut was broken, and further flights had to be postponed. M. Salmét, on Monday, gave exhibitions at Brighton, flying along the front and between the two piers. At Margate Mr. Louis Noel made several trips in a high wind as also did Mr. Travers who had by then got round to Margate. Mr. Hucks flew from Lytham to Blackpool where he rounded the Tower, and in a subsequent flight at Lytham after dark he piloted his machine over the sea. At Birmingham several exhibitions were being made by M. Fischer, who also did similar work on Tuesday. Mr. Hucks, on Tuesday, flew from Lytham to Southport where he and Mr. Gustav Hamel both did some flying. Subsequently, Mr. Hucks went on to Warrington, and was accompanied during part of the way by Mr. Hamel. In the evening these pilots gave exhibitions at Warrington and Southport, respectively. At Margate, both

Mr. Travers and Mr. Noel made flights, but the weather prevented M. Salmét from continuing his tour from Shoreham to Southsea, as arranged.

"Bristols" Abroad.

IT is interesting to record that two certificates were gained last week by officers at the Spanish Military School of Aviation on Bristol biplanes, where the Bristol Co. have now had the instruction control for about six months, supplying both pilots and machines, and exceptionally fine progress was made. These last two certificates were gained by Engineer Lieut. Sant Roman and Cavallerie Lieut. Banos.

A Bermondsey Memorial to the Hon. C. S. Rolls.

AS a memorial to the late Hon. C. S. Rolls, who was killed at Bournemouth meeting a couple of years ago, it is proposed to start a meeting place for sailors coming into the Surrey Commercial Dock. An appeal for £1,500 has been issued by the Mayor of Bermondsey, and a public meeting to further the scheme will probably be held shortly. Mr. Rolls was associated with Bermondsey through his parents, Lord and Lady Llangattock, who are large property owners in the district, and at one time Bermondsey boasted a Rolls Road.

A Sad Anniversary.

JUST a year ago last Saturday occurred the sensational tragedy at the London Aerodrome, when M. Petitpierre, the very able engineer to the Blériot school at the London Aerodrome, was shot by Hanot, a pupil of Swiss nationality, who appeared to have some imaginary grievance, M. Petitpierre falling the victim to Hanot's illusions when he ran amok with a revolver, finally committing suicide himself. The calamity is recalled by the fact that since then Madame Petitpierre, the widow, has endeavoured to fight by herself for the purpose of perpetuating the memory of her much revered husband. With this very laudatory intention in view, she is hoping to complete her provisional patent specifications in connection with valuable inventions connected with aviation which were the work of her late husband before the tragedy occurred, and which, had he lived a little longer, Madame Petitpierre is confident he would have brought to a very successful issue. It is mainly with the idea of keeping her husband's name prominent that Madame Petitpierre wishes to put forward the inventions in his name, and by this means justify his conscientious and scholarly work which he always prided himself upon, M. Petitpierre being a really clever mechanical engineer who graduated at the Ecole Centrale Lyonnaise.

Madame Petitpierre, moreover, she informs us, has determined to take up aviation as a profession, so that she may in practice utilise the inventions which emanated from the brain of her late husband. All our readers no doubt will sympathise with her in her courage and perseverance, and as she is desirous of co-operation in her work, she would be pleased to hear of anybody interested if they address her at 4, Redruth Villas, Collindale Avenue, Hendon, N.W.

The M. Farman Biplane in the Army Trials.

WITH reference to the Maurice Farman biplane which has done so well in the Army Aeroplane Competition, we understand that it is an ordinary standard machine as supplied to the Government. It is, therefore, all the more creditable that its performance is equal to, and in some points better than, higher-powered machines especially built for the competition.

Illuminating Aeroplanes at Night.

CONSIDERABLE interest has been aroused in the night flights of Mr. Grahame-White and Mr. Travers on their hydro-aeroplanes, and Mr. Hucks on his Blériot monoplane, at the various places they have visited. The electric lighting installation by which these demonstrations are rendered possible is nothing more or less than the C.A.V. system of electric lighting, which is so well known to motorists. By means of the powerful searchlights controlled from the pilot's seat the aviators have found it possible to follow their course and pick up their landing places.

Ordnance Maps for Aviators.

JUST as the Ordnance Survey Maps are used by a great many motorists, so, we understand, many aviators find them of the greatest assistance for cross-country work. For instance, M. Salmét, in his *Daily Mail* tour, has found the Ordnance two-miles-to-an-inch maps exactly what he needs, to show hills and water clearly. The series of Ordnance maps, on what is known as the layer system, show at a glance the varying altitudes of the land. Mr. Fisher Unwin is the sole wholesale agent for these maps which may be obtained through any bookseller or bookstall.

FLYING AT HENDON.

It was not until very late on Saturday evening that anything in the nature of a contest could be held at Hendon, owing to the high and gusty wind, which, although making it undesirable to race round the turns of the course, did not prevent exhibition flying.

The laurels of the day undoubtedly went to young Marcel Desoutter, who took the air on the 50-h.p. Gnome-Blériot early in the afternoon, when the wind was certainly over 30 m.p.h. The whole time he was in the air it was seen that he was constantly using the warp and elevator control—often to the fullest extent—in fact the monoplane had almost the appearance of suffering from St. Vitus' dance. He was up for about 15 mins. altogether, and after his flight was over, Jules Nardini went out on the 50-h.p. Gnome-Deperdussin. Later on James Valentine took over the same machine, which, by the way, is the one that he flew in the Circuit of Britain last year. Lewis Turner then flew the rebuilt Howard Wright biplane—having previously made a trial flight, and A. Blackburn also made a flight on the old Grahame-Wright Farman.

Just after five o'clock Turner flew the biplane again, whilst Desoutter, on the Blériot, and Nardini, on the Dep., also ascended. While the two monoplanes were still in the air, Richard T. Gates, the manager of the aerodrome, brought out the latest Henry Farman biplane, which he and Louis Noel flew over from Paris. This biplane has a very pretty appearance, the top main plane being of very large span, while the distance between the planes and tail elevator is comparatively short. It is fitted with an 80-h.p. Gnome motor, and the pilot and passengers sit forward of and between the planes respectively. Fitted to the tail-skid is a steel plough, intended to pull the machine up on landing, which it certainly does, and pretty effectually. After a preliminary run of the engine, Gates started off across the ground, and when just about to rise a side-gust caught one of the wing-tips and canted the machine almost over on to its side. By a smart piece of manoeuvring the pilot managed to right it in time, and rose into the air in a manner that showed that the machine was still suffering from the effects of its buffeting on the ground. He flew for about 15 minutes at a considerable height, up to 1,500 ft., and although the engine seemed to be missing, the biplane appeared to be very fast and steady.

At about a quarter to seven Lieut. Gray brought out his Blackburn monoplane, which had been erected during the afternoon, and an attempt was made to start the Gnome engine, without success. It was then that a Speed Handicap over four laps of the aerodrome was arranged, there being four competitors. These were: A. Blackburn (50-h.p. Gnome-G.W.-Farman), Lewis W. F. Turner (50-h.p. Gnome-Howard Wright), Marcel Desoutter (50-h.p. Gnome-Blériot), and James Valentine (50-h.p. Gnome-Deperdussin). Valentine was scratch, giving Desoutter 21 secs. start, Turner 2 mins. 30 secs., and Blackburn 2 mins. 52 secs. The finish was an impressive and close one, Valentine overhauling each of his rivals in fine style and finishing first, only overtaking Blackburn at the winning-post. Desoutter would have been second but for a false start, the monoplane swerving sharply to the left just before rising. Below are the tabulated results:—



Autograph Hunters at Hendon Aerodrome.—M. Verrier signing postcards for admiring members of the fair sex.

Speed Handicap (4 laps, 5 $\frac{1}{2}$ miles).

	Start.	Handicap	Net
	m. s.	m. s.	m. s.
1. J. Valentine ...	Scratch	9 22 $\frac{1}{2}$	6 30 $\frac{1}{2}$
2. A. Blackburn ...	2 52	9 30 $\frac{1}{2}$	9 30 $\frac{1}{2}$
3. M. Desoutter ...	0 21	9 45 $\frac{1}{2}$	7 14 $\frac{1}{2}$
4. L. Turner ...	2 30	9 59 $\frac{1}{2}$	9 37 $\frac{1}{2}$

MRS. LINDSAY CAMPBELL FUND.

As a result of the appeal made on behalf of the widow and children of the late Lindsay Campbell, the Australian airman, the following subscriptions are thankfully acknowledged:—

	£	s.	d.		£	s.	d.
No. 3 Squadron R.F.C.	5	5	0	"T. F."	0	10	0
Victor and Evelyn Rusby	0	2	0	Lionel Robinson	5	5	0
Col. O. Smeaton, R.A.	5	0	0	George T. Plant	0	2	6
"Lady Betty"	0	2	6	Mrs. P. E. Horn	5	0	0
F. A. Scrivener	1	1	0	Mrs. Gore Brown	10	0	0
Ernest S. Bull	2	2	0	Louisa Jane Marsden	0	3	0
"S. W."	1	0	0	G. H. Fink	0	1	0
E. C. Stock	1	1	0	E. Hotchkiss, Bristol			
"E. C. C."	1	0	0	Flying Schools	14	3	0
"Sammak"	0	2	6	"Bridget O'Garth"	0	2	2
"Two Sympathisers"	0	10	0	"Leeds"	0	1	0
"Mrs. C. L. B."	2	0	0				

Col. Massy wishes to make a further appeal, especially to Australians now in England, and while thanking the above subscribers will be glad of further assistance for Mrs. Campbell. He should be addressed at Coventry House, Coventry Street, W.

South Africa and Aviation.

ON leaving Johannesburg on the 7th inst. on his way to England, General Beyers said one object of his journey was to

AERONAUTICAL SOCIETY OF GREAT BRITAIN.

Official Notices.

Gift to the Library.—The Council desires to thank Mr. T. O'B. Hubbard for the gift of a valuable collection of about 120 books and pamphlets on aeronautics.

Wilbur Wright Memorial Fund.—The following subscriptions have been received:—Amount previously acknowledged, £501 5s.; Frank Hedges Butler, Esq., £10 10s.; C. G. Grunhold, Esq., £3 3s.; Dr. E. H. Hankin, £3 3s.; Lancelot L. Vigers, Esq., £1; E. T. Sturdy, Esq., £1. Total, £520 1s.

Associate Fellows Meeting.—There will be a meeting of the Associate Fellows at the Society's offices on September 4th at 5.30 p.m.

Summer Vacation—During the summer vacation (August 26th–September 7th) the offices of the Society will be open from 2.0–5.30 p.m. daily and on Saturdays from 10.0 a.m.–1.0 p.m.

Annual Subscriptions.—Members who have not yet paid their subscriptions for 1912 are requested to do so as early as possible, as the non-receipt of these subscriptions causes great inconvenience.

BERTRAM G. COOPER, Secretary.

engage two instructors for a military aviation school for South Africa. He further stated that it was intended to establish an aviation corps in connection with the Defence Forces.

FOREIGN AVIATION NEWS.

A New Speed Record.

ON an Austrian-built Nieuport monoplane, Mandelli, on Saturday last, at Wiener Neustadt, carried three Austrian officers for 56 mins. 33 secs., covering in that time 100 kiloms.

Paris to Berlin Flight.

ALTHOUGH he did not succeed in attaining his ambition to fly from Paris to Berlin in one day, Andemars secured the honour of being the first to make the journey by air between the French and German capitals. Leaving Issy at 5.30 on Sunday morning he made a first stop at Rheims at 7.5, but only stayed four minutes. On restarting he steered his Blériot in the direction of Mezières where the frontier was crossed. He had to fight his way against the wind, and eventually had to land at Bochum in Westphalia. He restarted the following morning, and after a stop to take on petrol at Hanover reached Johannisthal at 7.10 on Monday evening.

A previous attempt was made by Marc Pourpe on his Blériot on the 15th inst. He started from Etampes, and having turned at Versailles he made his way over St. Quentin. He was brought down by a squall at Breuilly. He started off again, and following the valley of the Meuse, reached Liège, where the rain made it necessary to stop and a landing was effected in the cemetery, after a trip of 420 kiloms. His machine was fitted with a 70-h.p. Gnome motor and a Chauvière propeller.

Both attempts were made in connection with the competition for the Coupe Pommery, for the longest distance flown in a straight line in one day.

Three Hours on a Train Monoplane.

FLYING over a large circuit, Chalons, Rheims, Epernay, &c., Labarre, on a 50-h.p. Gnome-Train, was flying for three hours on the 14th inst.

Good Work at Deperdussin School.

ON the 14th inst., on his Deperdussin machine, Lieut. Souleillan made a test for his military certificate over the Rheims-Amiens course, and did a similar trip two days later. On Saturday, Capt. Aubry was flying for 1 hour 37 mins., and got up to 1,500 metres. Prevost and Janoir were testing ten new military machines.

Flying Inspection Trips.

ON Saturday, several of the officers at the military Blériot school at Etampes paid visits to other aerodromes. Capt. Felix went over to Chartres, Capt. Faure to Buc, Lieut. Dupin to Cercottes, near Orleans, Lieut. Boucher to Pithiviers, and afterwards to Orleans, and Lieut. Bellemois to Angerville and Arthenay and back.

Organisation of French Military Aviation.

COL. HIRSCHAUER, in addition to the alterations which he has already effected in the French Military Aeronautic Corps, has

submitted to the Minister of War a scheme for the division of France into three great sections for aviation purposes, with headquarters at Versailles, Rheims and Lyons. Each section would be commanded by a Colonel, assisted by other officers, and they would have charge of a number of flying grounds and aeroplane stations.

The Michelin Target Competitions.

IN the last test for the Michelin prize of 50,000 francs for landing the greatest number out of fifteen projectiles, weighing thirteen kilogs. each, in a circle of 20 metres diameter, from a height of 200 metres, the best performance was that of Gaubert and Lieut. Scott, who landed twelve out of fifteen shots on the target. Lieuts. Mailfert and Lucca each placed two, and in the evening Lieut. Varcin got seven on the target. The weather was, however, very bad, and three competitors who were on the ground did not try for the prize which, subject to official verification, goes to Gaubert.

Gastinger Still Waiting to Cross.

IN the hope of being able to make his cross-Channel trip to London, Gastinger on Saturday, on his Clement-Bayard all-metal monoplane, flew from Crotoy to Harellet. There a torrential rain put cross-Channel flying out of the question, and after turning above Boulogne he went back to Crotoy.

Garros and Nieuport Superior Pilots.

ON Saturday, Garros, on his Blériot-Gnome, and Chas. Nieuport on a Nieuport-Gnome, each flew over a 200 kilometre course from Villacoublay to Etampes, Chartres and back to Villacoublay, by way of qualifying for superior certificates.

Another Farman Superior Pilot.

ALTHOUGH there was a strong wind blowing and a pouring rain a non-commissioned officer, Guittou, who has been learning to fly at Rheims made his last trip for the superior pilot's certificate on the 14th on a Farman machine over a course from Rheims to Amiens and back.

A New Nieuport Superior Pilot.

ON Saturday last, Baudoin-Rolane, on a Nieuport machine, made a first test for a superior certificate over a course from Villacoublay to Orleans and Chartres, and then back to Villacoublay.

Henry Farman at Trouville.

ALTHOUGH the weather was by no means good and the sea was rough, Mr. Henry Farman made some good exhibition flights on his hydro-aeroplane at Trouville on Monday last. Later in the day Mdle. Dutrieu had the machine out and made several trips on it.

Bomb Dropping at Gotha.

SOME of the principal competitions at the meeting of Gotha opened on Sunday last, are of military type, including bomb dropping and suchlike. From a height of 250 metres Lindpaintner on Sunday last dropped seven bombs on to a square with sides 100 metres long. Kaspar also got several shots on the target, but on landing his machine capsized, and he was slightly injured. Palmerbum succeeded in getting one out of three shots in the target.

Official Encouragement of Round Berlin Flight.

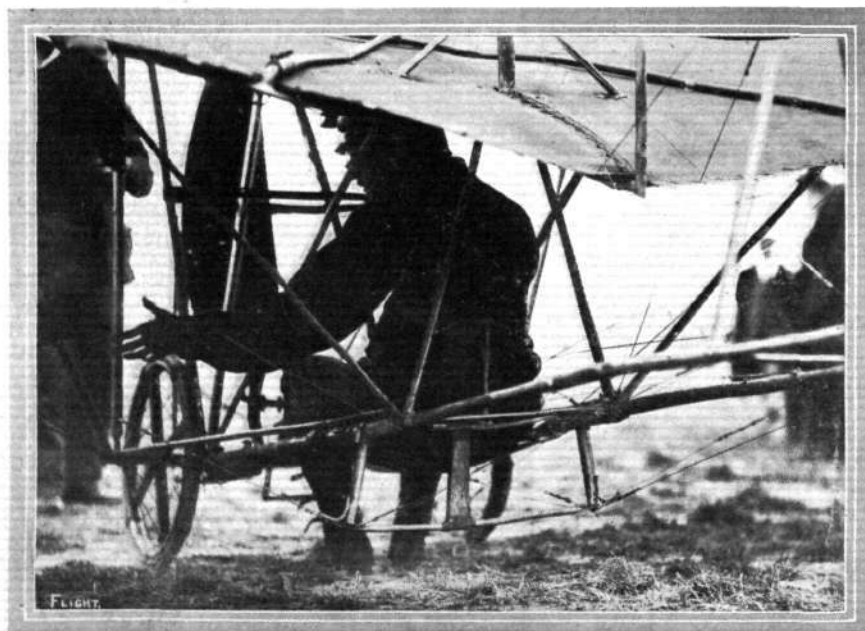
FOR the flight round Berlin, which is fixed to take place next Saturday and Sunday, the German Minister of War has placed a sum of £2,500 for prizes at the disposal of the Committee, and will purchase the winning machine, or a replica of it, for £1,250.

German Manufacturers Busy.

IT would appear that the German industry is in a flourishing condition, as following on the announcement that the German Aircraft Works at Leipzig were unable to send over the Mars biplane for the Military Competition on this account, comes the news that the Harlan and Rumpler firms will not be able to take part in the flight round Berlin owing to the number of orders on hand for the German military authorities.

A Hovering Aeroplane.

ACCORDING to the *Tagliche Rundschau*, which states that the source of its information is unquestionable, a German engineer has invented an aeroplane with which it is possible to remain poised in the air for some considerable time. The new aeroplane is said to differ considerably from the types at present in use and that it is being enquired into by the military authorities. Just what we have all been waiting for!



A REMINISCENCE OF AUDEMARS AT BOURNEMOUTH.—A silhouette of Audemars in the pilot's seat of his Demoiselle which he then flew. Note the rod which runs up to his shoulder blades at the back. This was secured in a strap round his chest, and by means of body movements he was able to warp the wings.

SOARING BIRDS IN ENGLAND.

By G. HOWARD SHORT.

HAVING made several observations of birds while they were soaring, at a period anterior to the publication of Dr. Hankin's articles, I should like to be permitted to give a brief account of some of those things that struck me most, as they seem to me to be interesting to those other readers of *FLIGHT* to whom Dr. Hankin's articles have been as interesting as they have to myself.

The familiar hawk known as the kestrel, has a habit of poising in a stationary position in the air at a height of from ten to fifty feet from the earth while hunting the fields for its prey, which is always taken on the ground. This poising feat is performed sometimes by flapping, sometimes by "poise-gliding," by which I mean that the bird remains suspended in one position on the wind without flapping. Sometimes there are alternate periods of poise-flapping and poise-gliding, the bird remaining stationary all the time; in fact the absolute stillness of the poise-glide in a light wind is remarkable, the bird looks like a stuffed specimen suspended from the zenith by an invisible thread. The kestrel seems to prepare to poise-glide whenever it can manage it, that is whenever the wind is sufficient to support its weight, probably because flapping attracts the attention of the prey beneath. Therefore it may be assumed that when, during a poise, the bird gradually ceases to flap and commences to glide, the attitude assumed is that calculated to give a lifting force equal to the bird's weight, together with the lowest possible speed of passage through the air, for of course the bird must be regarded as advancing through the air during a poise-glide, even though it may appear stationary to an observer situated on the earth. This attitude is as follows, the wings are slightly dihedral up and advanced and the tail depressed and considerably expanded.

I have seen a kestrel poise-gliding in an ascending current on the windward side of a hill. In this case the attitude was the same as that described by Dr. Hankin as assumed by cheels when poising over the battlements of Agra fort, that is the wings were flat and flexed, the furred tail being held at a slightly upward angle.

I will now describe an instance of a kestrel poising in a rather strong wind. I was standing by a gate looking over a moderate size field, the opposite margin of which was lined by a thick row of elm trees, in leaf. The wind was blowing rather strongly from the direction of the trees. Two kestrels were hunting the fields round about, poising frequently. Presently, one of the pair came up from behind and poise-glided, giving a side view. As I watched it through binoculars, I noticed frequent dip movements on the wing tips, also the wings were held nearly flat, and the tail was less expanded than is the case when the wind is light. The bird then glided forward, keeping at the same height—about 30 ft. up—and poised again. This time I watched carefully to see how it checked speed ahead when changing from gliding to poise-gliding. I noticed a rapid upward movement of the elbow joints, an action which reminded me forcibly of a man shrugging his shoulders. At the same time the forward part of the body seemed to drop, this attitude being maintained throughout the poise. The bird proceeded to hunt over the field in front of me, poising frequently; each time I saw the same action at the beginning of the poise. Many balancing movements were noticed, due, no doubt, to the irregularities of the breeze. At one time during a poise-glide I saw the furred tail raised to an angle of 45° for a few moments, while the wings were a little dihedral down, and I think flexed, though I could not see distinctly, as it gave a back view at the time (this is probably an instance of a temporary upward current), at last a poise was made so close to the leeward side of the trees, that if the bird was not actually within the influence of the downward current, it seemed at least impossible that there could have been any upward tendency in the wind. During all this time the wings were not flapped more than a few times, and these flaps were probably directive movements. Just at this moment a large flock of rooks appeared from behind the trees, and the kestrel dived, taking refuge among the branches of the elms. However, he was soon driven out and surrounded in the air by the flock of clamouring crows. The contrast between the flight of these two species, under similar conditions, was noteworthy, the kestrel continued to glide, head to wind most of the time, occasionally flex-gliding rapidly with loss of height. He seemed to have no difficulty in avoiding his adversaries. At one movement I even saw him scratch the top of his head with his claw while surrounded by these or four rooks intent on mischief. The rooks on the other hand did not glide, but proceeded in the usual manner which they adopt in a strong wind and which does not quite answer to Dr. Hankin's description of flap-gliding. It is an irregular succession of half-flaps with wings somewhat flexed.

In the above instance it will be noted that the wind was apparently horizontal but irregular. This is proved by the frequent balancing movements, and also by the fact that the bird assumed for

a few moments the attitude usually associated with descent while remaining stationary, thus proving a temporary upward current. It will also be noted that the kestrel is able to glide more easily or at any rate more steadily than the rook, and is much more agile in the air.

I will now give an instance of a gull poise-gliding: two kinds of gull visit the Thames in London every winter, they are the black-headed gull (which is not black headed in winter) and the herring gull. Of these the herring gull may be distinguished by its large size and more regular and gliding flight, it is also much more scarce, and wilder than the other species. Steering movements in the black-headed gull are often bewildering in their frequency. In the larger species they are much easier to see and understand.

The case of the gull poise-gliding to which I refer occurred in February. The wind was strong enough at times to make it difficult to keep one's hat on, and very cold; the sky overcast. Someone was feeding the black-headed gulls near Waterloo Bridge. As usual, they were flying round in circles, with little or no flapping as the wind was strong, passing near the parapet always on the up wind side of the circle. Some of the birds were seen to poise-glide when the wind was at its strongest, but they had to flap in order to remain poising during a lull in the breeze. The position of the wings in poise-gliding is as follows: camber appears to be increased, while the flat part of the wing is set at a smaller angle of incidence than usual, causing the gap between the metacarpal and phlangeal quills to become visible, but what surprised me most was that the covert feathers over the secondary quills on the back of the wings were frequently seen to be raised. This was especially marked when the bird was about to turn off for a glide, after poise-gliding. I think the wind was blowing in a direction parallel to the embankment at the time, at any rate the gull's head pointed in this direction when poising, so there could have been little or no ascending current. At one time I saw a gull poise-gliding above the windward side of one of the embankment lamps so close to it that its tail nearly touched it, evidently it was resting upon the upward current deflected from the top of the lamp, but this could hardly have extended to the tip of the wings.

It will be seen from the above instance that a gull in poising puts the tips of its wings partly out of action while increasing the camber of the inner portion, I think, to maximum. I have since seen a gull check speed ahead on a calm day in the same manner, the secondaries were depressed and the primaries set at a small angle of incidence showing the gap. This appears to be the position that gives a lift equal to the gull's weight with least speed ahead.

I have seen it stated that the black-winged kite (*Elanus coerulus*) inhabiting South-Eastern Europe, Africa and India has the same habit of poising as the kestrel, but that the wings are held so as to be within four inches of each other above the back, while the legs and tail hang down. An accurate description of this attitude would be useful as it seems to be that of the poise-gliding kestrel in an exaggerated form, probably due to greatest wing area.

It will be seen that the dihedral up position seems to be associated with great lifting power and slow speed, although in the gull the outer portion of the wing is dihedral down in poise-gliding. I have not yet been able to ascertain whether the bird can poise-glide in every kind of wind or whether sunshine or the presence of storms has any effect upon this kind of flight but I have noticed that the rook, a bird that only soars occasionally, is able to circle with gain of height in fine sunny weather and also in the presence of storms.

My observations tend to show that not every wind is soarable. I have made many observations on a large flock of rooks that pass over this neighbourhood every afternoon in winter. They are always making for the same spot, that is, the roosting place, which is situated in a direction due north. On some windy days I have seen them hardly able to make their way along by continual flapping movements, while on other occasions, as on a day in last February, when the wind was west and very strong, the rooks came along in several large flocks, which hung over the place for some time moving backwards and forwards. The birds did not flap, but appeared to lie upon the wind in the flex-gliding attitude. The flocks frequently remained in the same spot for some time, although the birds composing them were continually shifting their positions, but they did not circle. They seemed to thoroughly enjoy this effortless form of flight, and showed their pleasure by emitting hoarse croaks. The sky was overcast on this occasion.

When the wind is unsoarable or not fully soarable for rooks, they progress by the half-flapping flight already described, usually in a series of semi-circles when travelling at right angles to the wind. These half-flaps are probably intended as much to increase stability

as to produce tractive effect, the rook has the appearance of a badly-balanced bird when gliding, the tail is in constant motion, and sudden jerky movements of the wings are sometimes seen which are in great contrast to the even gliding of a gull or kestrel. I will now give an instance of wind soarability connected with a storm. It occurred in the early spring. On the day in question severe snow-storms were followed by intervals of bright sunshine. The wind was north-east and strong, especially under the storms. I was standing at a window looking due west, I noticed that the snow-

flakes immediately in front of the window were travelling in a direction opposite to that of the wind, this was evidently due to a return current caused by the wind striking the corner of the house. As the storm passed off towards the south-west, I saw a rook circling in the wake of it, about 300 ft. up and gaining height.

Unfortunately, I did not notice whether the sun was shining on the bird. I had learned to associate soarability with fine weather, with storms and with some kinds of wind but not with sunshine.

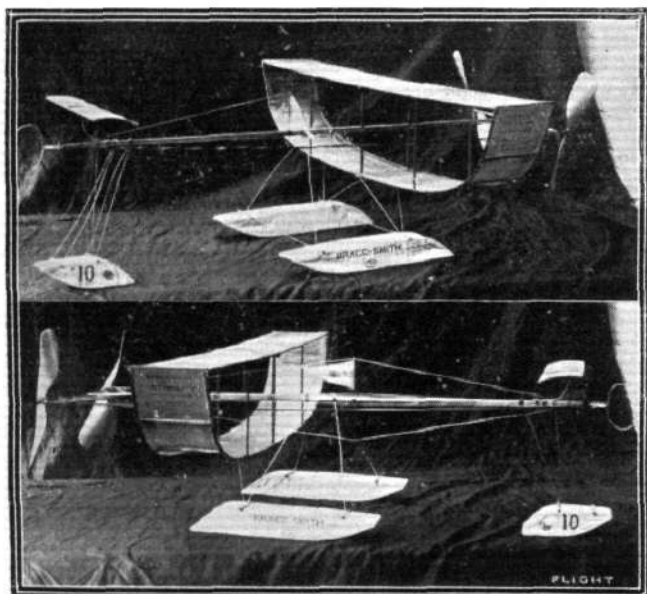
Models

Conducted by V. E. JOHNSON, M.A.

The Hydro-Aeroplane Competition at the Welsh Harp, Hendon.

AMONGST the numerous competitions that have been held since model flying came in vogue no more interesting and instructive, not to say exciting, competition has ever been held than that on the waters of the Welsh Harp on August 10th last for models rising from and alighting on the water under their own power. The number of entrants was some 25, and as most of them put in appearance, a really fine competition was the result, and for the first of such contests (in this district at any rate), the results were, in our opinion, extremely good. The best flight was that made by Mr. G. P. Bragg-Smith, viz., 21.2 secs., the model rising well up into the air and flying with great steadiness throughout. It was really a very fine flight and was deservedly applauded by the spectators and other competitors.

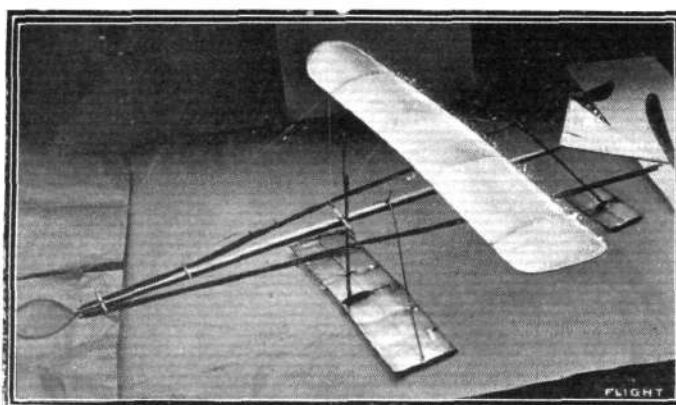
We give two photographs of Mr. Bragg-Smith's machine, which will give those of our readers who were not at the competition a



Mr. G. P. Bragg-Smith's winning model hydro-aeroplane.

very good idea of the general build of the machine, which was of the usual type of this well-known model, with floats fitted to the wire chassis of the landing model—the design being slightly modified so as to enable not only the angle of incidence and longitudinal position of the floats to be altered along the motor rod—but the height of the same as well. We are unable to give any more precise details of exactly how this is accomplished as the designer prefers them not published at present. The following are the chief particulars of the machine: span of main plane, 30 ins.; chord, 5 ins.; gap, 6½ ins.; length of motor rod, 38 ins.; elevator span, 10½ ins.; chord, 2½ ins.; twin propellers diam., 10½ ins. The general character and contour and position of the floats is clearly shown in the photographs; the following are the chief particulars regarding them—materials, skeleton wooden frame covered with jap silk (Bragg-Smith proofing and varnish), and in this particular case painted white as well. Depth 1¾ ins., width 2 ins., length 12½ ins. These dimensions refer to the two rear floats—the weight of each is, we believe (we quote this

from memory), ¾ of an oz. The section of the front float is similar, but its length is only 6 ins. The total weight of the model is 12½ ozs.; the motive power 14 strands of 12th square-sectioned rubber—weight 3½ ozs. The above particulars contain the necessary



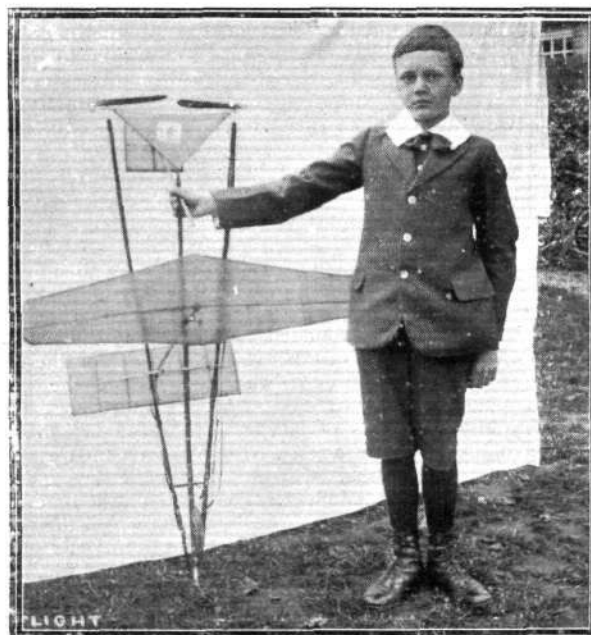
Mr. V. E. Johnson's model, smashed in the competition.

data for applying the well-known efficiency test : Duration of flight × Total weight of rubber

Weight of machine.

The result we leave as a little exercise for those of our readers who may care to know.

Mr. Bragg-Smith's best flight was his third attempt, the model alighting without damage on land. His first attempt resulted in a flight of 17 secs. In his second attempt the model circled to the left, and, refusing to leave the water, ran up two or three yards on to the low-lying shore.



Master P. K. Johnson and his model, 6th in the competition.

Only one machine with sausage floats put in an appearance, and that failed to leave the surface of the water—it would be untrue if we were to say that we were sorry to see this result—such a device is of so unscientific and unpractical a character that we sincerely trust that it will be barred in all future competitions. The results of the contest very clearly showed the superiority of the silk-and-wood-type of float as advocated by me in these columns. I am referring here to the materials. As to the best shape or form, far more than one competition is necessary to decide such a knotty point, but I saw nothing at the contest that would cause me—at any rate, at present—to alter the views I have put forward. My own personal endeavours were brought to nought by the boat of a too zealous photographer, who, not content with experiments of a photographic character, supplemented them by others of a mechanical nature in the character of collision—with the result that our model was smashed beyond repair—just after it had risen from the water. Two other models, at least, were also placed *hors de combat* during the competition, both, we believe, by collision with boats. In the next competition, which takes place on the 31st, it is to be hoped that means will be found to prevent this. Amongst the competitors was a young Chinese gentleman, supported by several of his countrymen as spectators. His model flew remarkably well, and we were rather surprised when the results were read out that he was not higher up on the list than he actually was. With a Dutchman winning the Gamage Cup, and a Chinaman and, no doubt, other foreign

nationalities in other contests, the K. and M.A.A. competitions can truthfully be said to be assuming a really international character. Interesting as was Saturday's competition, that to be held on August 31st, will, we are sure, be far more so—we look for a much keener fight and closer finish, and would not even hazard a guess as to the actual winner. We do not think the difference of permissible weight will have much effect, and we think competitors would do well to render their present designs more perfect in the interim than to start adopting others—which, judged from their results on other machines, give apparent promise of greater success.

We shall be pleased to receive photographs for reproduction (if suitable) of competitors' models in Saturday's (August 10th) contest.

Replies in Brief.

W. COUN.—A question such as you ask is a very simple one to answer—if you can see the model in actual flight—otherwise it is sometimes rather difficult to state the exact reason, apparently it is due, as you suggest, to propeller torque, try one with a finer pitch, and increase the area of your fin considerably, just as a test, or try a 6 in. propeller and report results. If you were to use a geared motor as we have more than once described in these columns, we should expect your trouble to be much lessened, even if not altogether overcome.

A. C. BARLOW.—Send a dimensioned sketch of your model and full particulars and we will answer your query.

THE KITE AND MODEL AEROPLANE ASSOCIATION.

OFFICIAL NOTICES.

British Model Records.			
Hand-launched	{ Distance ...	A. E. Woollard	... 477 yards.
	{ Duration ...	A. F. Houlberg	... 89 secs.
Off ground	{ Distance ...	F. W. Jannaway	... 84 yards.
	{ Duration ...	G. Rowlands	... 30 secs.

Competition.—Held on Saturday, August 17th, on the 100 Acre Field, Greenford, for longest flight and stability. Prizes: 1st, the Association's silver challenge cup and gold medal; 2nd, silver medal; 3rd, bronze medal. Maximum marks: 100 for longest flight, 100 for stability, and an additional 50 marks for models rising from the ground under their own power. The results were as follows:—

	Marks.	Distance.	
1. A. F. Houlberg	... 204	415 yards.	Rising from the ground.
2. G. P. Bragg-Smith	... 175	262 "	Rising from the ground.
3. J. McBirnie	... 170	527 "	Hand launched.
4. R. Stedman	... 161	217 "	Rising from the ground.
5. H. Bate	... 155	281 "	Rising from the ground.
6. W. J. Williams	... 145	235 "	Rising from the ground.

The judges were Messrs. V. E. Johnson, M.A., and E. W. Twining.

Model Competition, to be held on the 100 Acre Field, August 24th, at 3 p.m. Junior distance competition, open to the world, for models made throughout by competitors. Prizes: 1st, £1 15s., presented by C. Ridley, Esq.; 2nd, model monoplane, presented by Messrs. Mann and Grimmer; 3rd, bronze medal, presented by the Kite and Model Aeroplane Association. Rules: 1. Competitors may submit models of any kind. 2. Models must not weigh less than 4 ounces. 3. Competitors must be at the judges' flag at 2.45 p.m. 4. Reasonable repairs will be allowed at the discretion of the judges. 5. Models may be started by hand, or in any other manner. 6. Each competitor is entitled to three trials, if time permits. 7. The length of flight will be measured in a straight line, from starting point to alighting point, and not along the line of flight. 8. In this competition each competitor must obtain the signature of some responsible person who knows that the model has been made throughout by the competitor, including the propellers.

For W. H. AKEHURST, Hon. Sec.,
E. W. TWINING.

27, Victory Road, Wimbledon.

PROGRESS OF FLIGHT ABOUT THE COUNTRY.

Model Clubs: Name of District only given. In brackets: Secretary's address.

Notes regarding Clubs must reach the Editor of FLIGHT, 44, St. Martin's Lane, London, W.C., by first post Tuesday at latest.

Aero-Models Assoc. (N. Branch) (15, HIGHGATE AVENUE, N.).

INTERESTING flying between storms Saturday week. Messrs. Murray, Pidsley, and Hindsley tuning up tractors. Green and Kerry also flying. Majority of members carrying out experiments with tractors. Sunday week, Mr. Pidsley got his 6-oz. tractor to rise from ground, and it repeatedly flew for about 30 yards. Last Saturday, at Finchley, Mr. Brown, with his kite, afforded means for some unique experimenting. The members' models were run up the line of the kite to a height of about 200 ft., and were then released by a spring attachment. An impromptu duration competition, for tractors only, to-day at Finchley. August 31st, second monthly meeting for duration. Tractor models will have result of flights in secs. doubled. Entries 3d., to secretary, to-day, Saturday, latest. August 28th, committee meeting 8 p.m.

Aldershot Aero Club (37, ALEXANDRA ROAD).

FLYING during week by Fenney, Gaffney, O'Reilly and Hobbs.

Bath and Somerset Aero Club (11, ELM PLACE).

SATURDAY week the club held a contest and display at the aero camp at Claverton. Those competing were Messrs. L. S. White, R. C. Cross, C. Wilcox and S. H. Baker (Bath Aero Club); F. L. Smith, A. E. Pearce, N. W. G. Edgar, J. Keyte, R. T. Howse, W. A. Smallcombe, J. H. Read (Bristol Aero Club); and G. Haddon Wood (Birmingham Aero Club). Results as follows:—Direction control, distance and speed: 1st, R. C. Cross (distance 197 yards). Duration: 1st, R. T. Howse (36 secs.). Stability: 1st, W. G. Edgar. Best all-round machine: 1st, L. S. White. Prizes were presented to winners by Major Boileau.

Birmingham Aero Club (8, FREDERICK ROAD, EDGBASTON).

GOOD flying during week before last. Over 50 flights on Trykle glider made in 3 days. Highest about 16 ft.; distance about 60 yards. Juniors continuing experiments with their glider.

Blackheath Aero Club (48, HAFTON ROAD, CATFORD, S.E.).

SUNDAY week Mr. S. Hunt flying his tractor, Mr. Dixon an off-the-ground model, and Mr. A. E. Woollard floating tail mono. Messrs. Whitworth and Williams represented the club at the hydroplane contest Saturday week; the latter obtained the third prize. The Dunedin (New Zealand) Aero Club asks for the loan of models to be displayed at an exhibition in the autumn. Any member who cares to exhibit should let the secretary know immediately.

Brighton and District ("KINGSLEIGH," KINGSWAY, HOVE).

BANK Holiday. Messrs. Bate and White carried off 1st and 2nd prizes at Littlehampton. At Shoreham:—Hervey (rise-off-ground), 270 yards; Williams (1-1-P2), 44 secs.

Bristol & West of England (CLIFTON DOWN HOTEL, CLIFTON).

A PARTY of the above club visited the meeting of Bath Aero Club, at Claverton Aero Camp, on 10th inst. Excellent flights were made by members of both clubs, the Bristolians gaining the following awards:—Distance: 2nd, W. A. Smallcombe. Duration: 1st, Howse; 2nd, W. A. Smallcombe. Speed: 2nd, J. Read. Stability: 1st, L. W. Edgar. Gliding competition arranged 17th postponed until to-day (24th), at 3.30, at club's Keynsham ground.

Colwyn Bay Model Aero Club (FARNDON, COLWYN BAY).

AT club aerodrome Saturday week, Councillor E. Allen, J.P., and other interested supporters of the club saw the following flights. George Watts (1-1-2 Po) 100 yards; Dan Allen (1-1-2 Po) 97 yards; Leslie Bradley (1-1 Po) 77 yards; Norman Hall, 36 yards.

Croydon and District Aero Club (Sec., 129, HIGH STREET).

AT last the club have been able to procure a workshop. Gliders will be started immediately. All materials obtainable at club. Good flying by Messrs. C. Smithers (distance and stability mono.), W. Bell, W. Roden, and H. Smithers (floating tail models), and Mr. P. Hart (rise off). Flying evenings at Duppas Hill; Sundays at Mitcham Common, after dark illuminated flying.

Hackney and District (THE HOLLIES, JENNER ROAD, N.).

SATURDAY official durations: Gittus, 57 secs.; Dore, 50; Marmin, 30. Flying as usual this week.

Hendon Model Aero Club.

ALL persons desirous of joining this club should apply for particulars, by letter only, to Mr. H. Hills, 2, Algernon Terrace, Station Road, W. Hendon, N.W.

Maidenhead ("THE ACACIAS," SPENCERS ROAD, MAIDENHEAD).

SECRETARY on holidays. Panniers making great improvement, and flying during week in high wind with Tucker, Humphries and Laker. Machines showing great stability, with fairly good durations. Several members building scale and r.o.g. models.

Paddington and Districts (77, SWINDERLY ROAD, WEMBLEY).

NEW flying ground between Sudbury and Perivale is voted excellent. It is particularly suitable for gliding. There are already rumours of a band of new members ready to construct a first-class glider, good sport with which would be assured. Saturday, flying on new ground by Messrs. Woolley, Carter, C. Levy, M. Levy, Dutton, Chalfont, Davidson, Yamold, Judd and W. Evans. Paddington Cup (open duration competition).—To-day, Saturday, contest for Paddington Cup. Competitors must be at judges' flag by 4 p.m., otherwise they will be disqualified. Three medals will be awarded.

Reigate, Redhill & District ("THE COTTAGE," LADBROKE RD.).

SPLendid exhibition at Mayor's garden party. "Baby" exhibition models popular. Mr. Burghope's 38-oz. Nieuport doing fine 100-yard flights. Mr. Norton's aero-hydroplane tuning up. Last week-end, Norton testing propellers and tuning up 2-ouncers. Burghope out with Nieuport, fine 100 yard flights. Also flying 7 dram 1-1-P2, 160 yards, span, 8 ins. Morris gliding old machine, loaded with lead. Several over 150 yards from Buckland Hill. First of series of lectures was given on Friday, by hon. sec.

Scottish Ae.S. Model Aero Club (6, MCLELLAN STREET, GOVAN).

SATURDAY week, Mr. J. C. Balden gave display at Pitfodel, Aberdeenshire, before members of the Aberdeen Aero Club. At Whiteinch Pond Mr. J. S. Gordon experimenting with hydro-aeroplane testing new floats. Annual general meeting September 5th. Saturday, at Paisley racecourse, Mr. W. G. Langlands

won medal for duration and distance aggregates. Mr. Lees and Mr. Gordon also doing good flying. In evening visit to new workshop with new lathe, 16, Holland Street, off St. Vincent Street. Members meet there to-day (Saturday), 3.30 p.m. Flying, Paisley racecourse, Sept. 7th.

Sheffield Model Aero Club (35, PENRHYN ROAD, SHEFFIELD).

AUGUST 13th flying demonstration at Beighton and District Band of Hope Children's Gala. Great success. Sixteen models on ground. Mr. J. P. Worrall and Master C. E. Worrall (youngest member of club) flights of over 1 mile. Mr. G. H. Dewnap, r.o.g. model about 250 yards. All previous club records beaten.

Stony Stratford and District Aero Club (OLD STRATFORD).

At Wolverhampton Flower Show, opened by Lady Verney, 20 kites and 34 models were staged, including one neat twin-tractor screw monoplane, built from FLIGHT, of 10th, by Mr. Moore, who also showed his "Yellow Bird" and a "Blue Bird." Mr. Brown was represented by 11 kites and several models. Amongst others exhibiting were Messrs. C. Butler, Mandeville, Benbow, R. W. Elmes, R. W. Field, Lawson, Watson, H. Hamilton, O. Hamilton, jun., and Miss M. Hamilton. A. G. Pugh, late of Bootle Aero Club, only representative in loan section. The enthusiasm over the club's fine exhibit can only be put down to the great flight across this part of the country by Mr. Slack on the I.C.S.

Blériot on the previous Sunday, whereby a thirst for information has been started, which it will be the club's work to appease.

Windsor Model Flying (10, ALMA ROAD, WINDSOR).

SATURDAY week, members' durations averaged 35 secs. Meetings to-day, circular course, Home Park.

Worcester Model Aero Club (CORN MARKET, WORCESTER).

SATURDAY week the club record was twice improved upon. Mr. Colton with his Houlberg model made flight 54 secs. and Mr. Pollard (Trykle type) 300 yards.

Yorkshire Ae.C. (Model Sec.) (53, WEST STREET, LEEDS).

At Beeston, Thornton vol-planes from 30 ft. (single propeller), Holmes and Mab (twin propeller) high flights. Flying to-day, Woodhouse Moor.

SCHOOL AERO CLUB.

Southgate County School Ae.C. (72, NATAL RD., NEW SOUTHGATE).

At recent meeting, E. R. Brown, the late secretary, was thanked for his services. J. Reed was elected to fill the vacancy. He is constructing a power-driven Paulhan-Tatin torpedo.

CORRESPONDENCE.

Correspondents communicating with regard to letters which have appeared in FLIGHT, would much facilitate ready reference by quoting the number of each letter.

R. C. Fenwick's Fatal Accident and the Mersey Aeroplane.

[1610] As the late R. C. Fenwick's partner, and an eye witness of the terrible disaster which cost him his life, I would like to give as clear an account as I can of the accident, the accounts which have appeared in the papers being, as usual, very far from correct.

Fenwick began his last flight shortly after 6 p.m., in a dead calm. The machine got off quickly and climbed steadily and straight to about 300 ft. At this height he seemed to encounter strong wind gusts. I could see that he was warping, and a moment afterwards he dived to gain speed. After a short dive, seeming to find that all was calm again, he again began to climb, but again encountered gusts and dived. It seemed that the second dive was meant to be continued till the machine reached the ground, as it was continued for 50 or 100 ft. perfectly evenly and steadily. Instead of continuing, however, the dive changed to a vertical drop, the machine falling until it was out of sight.

The machine seemed perfectly under control until the end, and was not in any way "blown over" or overpowered by the gusts—as some papers have stated. The really inexplicable part is why a seemingly well controlled vol plane should have changed into a vertical drop. The machine may have dived into a bad pocket and not have had time to recover. Or poor Fenwick's feet may have slipped forward off the rudder bar, throwing him against the elevator, and so causing the drop. He was wearing smooth-soled rubber shoes and had been walking on wet grass, which may have caused the slip. We shall never know. All controls were in order. The wind gauge during the time of his flight showed a dead calm, an absolutely sudden gust of some 20 m.p.h., followed by a few seconds' calm, and then another violent gust, followed by a wind rising till late at night.

Several officers who were standing with me watching the machine can corroborate my account.

Fenwick was not only my partner, but a very intimate and dear friend, and his sudden and tragic death was a terrible shock. In justice to a sound designer, skilful mechanic, and careful pilot, and in justice to a good machine, I cannot let the ordinary newspaper reports go unchallenged, but am sending you an account of what I personally saw.

May I take this opportunity of thanking all those, too numerous to thank individually, who have shown their kindness and sympathy during the last few days.

South Shields.

S. T. SWABY.

Safety Helmets and Fatalities.

[1611] I do not think that the direct cause of Mr. Lindsay Campbell's death has been brought into sufficient prominence. The cause, as first given in the papers, was that it was due to his having been thrown against the cross-bar of the fuselage, thereby sustaining internal injuries. From the medical evidence given at the inquest, however, it is made quite clear that death was due to fracture of the skull, and that the actual accident was not worse than very many out of which the pilot has escaped without a scratch. This makes it perfectly clear that, had Mr. Campbell been wearing a safety helmet, he would have been alive to-day. As had been pointed out elsewhere, aviators, and especially English aviators, have a constitutional objection to wearing helmets for the reasons apparently that their use makes the wearer conspicuous or that it is too much a concession to the idea of danger. This is, of course, quite absurd. Furthermore, it cannot be said of helmets as it can be of safety belts that there are two opinions as to their utility. Deaths have been caused as well as avoided by the use of belts,

but in no case can it be said that the wearing of a helmet has occasioned a fatality. While I am not of opinion that any definite rule should be laid down as to the wearing of a safety helmet, yet I hope that all flying schools, especially monoplane schools, will do their best to encourage its use.

FLUG.

Gyroscopic Force in Aviation Accidents.

[1612] In view of the great number of fatal aeroplane accidents that are occurring, and the wild and varied guesses at the cause, it seems nothing short of criminal to keep from the public the findings of a number of men who have devoted years of scientific and practical experiment in an effort to discover and remove the chief danger of aviation. If you will take the trouble to look up the records of all the fatalities to date, you will find that by far the greater part of them occurred to aeroplanes having as a motor either a revolving cylinder motor or a motor possessing a high speed fly-wheel. You will also find that in the reports of a majority of these accidents, that the same wording fits every case, with hardly any variation from the following:—"The machine seemed to falter for an instant, shuddered slightly, then turned its nose downward, and plunged." In the minds of those who have made a thorough study of the erratic action of gyroscopic force, there is not the slightest shadow of a doubt but what all of these accidents have been directly caused by this force being generated in the motors.

Over six years ago the writer made the discovery that under certain conditions gyroscopic force is an extremely dangerous article and is the very last thing that one would think of taking up in an aeroplane. While my theory met with ridicule on nearly every side, I fought strenuously for its recognition, but it was not until nearly four years later that any public mention was made to show that others were beginning to find the truth. This mention appeared in *Scientific American*, under the date of April 23rd, 1910, in an account of the accidents that killed Le Blon and Delagrange, both of whom were flying aeroplanes equipped with rotating motors, and stated that "The gyroscopic action of the motor undoubtedly had something to do with both of these accidents." I wrote warning after warning to the daily papers, and also to all the aeronautical journals, none of which were printed. Then, last year in April and May, two of our aero magazines printed articles by the writer. The publication of these articles seemed to set the ball rolling, and a number of daily newspapers and periodicals gave space to the subject.

With one notable exception, Baron E. Adrian von Muffling, whose able article on the danger from gyroscopic force was printed in *Fly* magazine, April 1912, I have fought the fight alone on this side of the water. In the past year a number of prominent scientists and engineers of France, England and Germany have made the same discovery, and have in positive terms given their warnings through the foreign aeronautical journals, but so firmly rooted is the belief that gyroscopic force is a stabilizing agent, that the public, makers of aeroplanes, and even the aviators themselves, were slow in recognising this great source of danger.

Unfortunately there is absolutely no way in a laboratory of reproducing the exact conditions existing in an aeroplane in flight. Perfectly free suspension is necessary. A very slight sudden lift or drop in the front end of the aeroplane is what excites gyroscopic force to the danger point. These disturbances are not constantly occurring but are liable to happen at any moment, and the tremendous twisting force that is instantly set in motion is so great that the front of the machine is pitched violently downward, and is at once beyond the influence of the control levers.

It is very unfortunate that the writer, who discovered the source of danger, should also have been the inventor of a motor in which gyroscopic force is entirely eliminated, as my warnings have been repeatedly turned down by the Press, because, as they said, I had

"an axe to grind." Although the principal countries of the world have granted me broad basic patents on my non-gyroscopic aero motor, I want to say, that if there was no other way, and it would be the means of saving but one life, I would gladly give my patents to the world in the interests of humanity.

As we must all give credit to our aeronautic journals for a great part of the wonderful progress made in aviation, so must we also blame them for the ruthless slaughter of our aviators in cases where the editors persistently refuse to print the truth just because they cannot see it themselves. The lives of hundreds of flyers are at stake and it would seem that where the slightest doubt exists, an effort should at once be made to get at the facts. I would therefore suggest that a committee of five, or more, be appointed, this committee to be competent engineers and scientists, who are in no way affiliated with the makers of engines, and the results of the tests and observations made by this committee given world wide publicity. The writer will be pleased to contribute a mass of evidence, furnish apparatus, and give demonstrations. Also Baron von Muffling and others would undoubtedly be glad to assist. It would be very proper that any expense attached to this inquiry should be borne by the Aero Club of America.

As this is a matter of most vital importance to all nations there should be no delay in getting down to the real facts. I therefore urge you, in the name of humanity, and by all the principles of fairness, to publish this letter.

Chicago, Aug. 3rd, 1912.

THOMAS PRESTON BROOKE.

[Our correspondent has some slight tendency to issue his verdict before his jury is even empanelled; but, apart from the unnecessarily strong tone of the above letter, we agree that the subject of gyroscopic force is of some interest, and might with advantage form the subject of an authoritative statement by a committee of responsible persons. It may be another matter altogether, however, to select the personnel of the committee and to facilitate their inquiry to a useful issue.

So far as FLIGHT may be included in the above writer's strictures on the laxity of the technical press in this regard, we would venture ever so humbly to point out that we published what we considered to be a very interesting and able article by Albert Kapteyn, President of the Aviation Section of the Dutch Aero Club, in our issue of November 19th, 1910. In this respect, therefore, we were scarcely so very slow in drawing attention to an aspect of aviation that we considered to be worthy of notice.—ED.]

The Natural History Museum and Flight.

[1613] It may interest your readers to know that, in view of the great interest taken in the flight of animals in consequence of the rapid progress recently made in the science of aeroplaning, specimens are being prepared at the Natural History Museum to illustrate in a popular manner the models of flight in Vertebrates and Insects.

The preparations are designed to explain the mechanical principles involved in the link-work and leverage of the skeletal parts, the power-producing mechanism (elevator and depressor muscles) and its relation to the skeletal parts, the structure and shape of the flight membranes, and the mode of folding of the wings when at rest.

Examples will be shown, not only of animals possessing the capacity of true flight, but also of those which move through the air by scudding or parachuting down from a higher to a lower level.

National Liberal Club. F. G. H.

Automatic versus Inherent Stability (1606).

[1614]. Mr. Earle L. Ovington's reply makes interesting reading, but while it adds to the argument, it adds nothing to the solution of the problem—it is a pity that he altogether overlooked Mr. T. W. Clarke's letter.

It was in the interests of progress and the inventor that I entered this discussion, and I would point out to Mr. Ovington, whatever his intentions are in this respect, his letter, seeing that it comes from an experienced engineer and aviator, cannot have but one effect.

That there are inventors with a sufficient belief in their inventions to rent the number of hangars stated promises well for the aeroplane. They may in Mr. Ovington's opinion appear pathetic and misguided, and he, with his superior knowledge, may be able to point the direction it would be better for them to turn their abilities, in turn they may point out to him that experienced engineers, among others, said the same thing of the Wright brothers and Mr. Cody who not only improved but built an aeroplane, without being able to fly, or previously seeing anyone else do so.

I do not for one moment suppose Mr. Ovington's article will prevent one of these misguided enthusiasts from practically testing his ideas, and only harm could come if it did do so; bitter disappointment may be their lot, throwing cold water over them

will not better that condition of things. That Mr. Ovington is not so sure of the way, himself, is disclosed by the statement, "if inherent stability cannot be obtained then it is time enough to turn our attention to automatic stability." Can he give his reason why the practical testing of automatic stability should stand aside or be delayed until inherent stability has been tested and found wanting?

Mr. Ernest Warde Fox is no doubt well advised to devote his energies to the aeroplane pure and simple, but who does his "my fellow designers include"? not Mr. T. W. Clarke evidently, or any other of the French or English builders, who are all more or less interested in, or looking out for, improvements including those relating to stability.

It is, I think, now generally acknowledged that inherent stability in all winds and under all conditions, is next to, if not quite impossible; it is also generally conceded that a machine fitted with an automatic device need not necessarily be less inherently stable than the best machine not so fitted.

For instance, a machine having the maximum inherent stability fitted with a device to enable that maximum stability to be maintained under varying conditions of speed, wind, &c., so that it is better equipped to meet local and varied conditions, and is likely to require few if any balancing movements of its pilot while those conditions prevail, would be an advance on any present day machine. If the necessary alterations could be carried out automatically, so much the better. Seeing that such a system leaves the control in the hands of the pilot, and the machine's inherent stability is maintained automatically we have a combination in which each kind of stability, automatic, inherent and manual are additional and not alternative.

The difficulties in the way of designing such a machine are great, but not insurmountable, and if the automatic portion refused to work, we should still have the most perfect inherently stable machine for the conditions which prevailed before it did so.

The idea that a pilot will ever be able to lash his wheel and go to sleep in an aeroplane any more than in an Atlantic liner if ever entertained, had better be dismissed—"the watch dog always wants feeding and attention."

Worthing.

FRANK W. B. HAMBLING.

[1615] I am writing to point out a couple of flaws Mr. John V. L. Hall has failed to see in his method—as yet (Letter 1607). If he were to couple the trailing edges together as described so that as the angle of incidence of the one increased the other decreased in a like proportion, it is evident it would aggravate the trouble and make the machine list hopelessly, the "increased angle" wing would lift more than the "normal" one, and if the latter's angle of incidence were decreased—instead of being left alone even—surely he must see the result.

As to the whole plane being hinged about the front spar, has he considered the fact that the centre of pressure varies with the angle of incidence? and that this fact alone would introduce endless complication.

Burton-on-Trent.

HUGH G. HARRISON.

[1616] In reference to the argument that is at present running in your valuable paper. If, as Mr. Earle L. Ovington (Letter 1606) states it is no more trouble to steer a Blériot than a bicycle, why is it there are so many schools for teaching aeroplane flight. I know of none for teaching how to ride a bicycle. Would it not be better to end this argument by asking Mr. Dunne these questions: (1) Has he ever had an accident other than bad rising or landing, (2) Would he be agreeable to take up a passenger to see that after rising a certain height, he, (Mr. Dunne), took his hands off all controls (engine excepted) and flew for 5 miles, places hands on controls, turns; hands off again until reaches starting point, then having set the rudders, hands off again for six complete circles. If Mr. Dunne answers "Yes" to (2) and "No" to (1), then the matter is ended, for I am sure that there is not another constructor in the world who can, and that would prove undoubtedly that Mr. Dunne's machines are superior to any others, and, incidentally prove inherent stability superior to anything else. I am in no way interested in Mr. Dunne excepting that I realise that he is the only inherent stability constructor who can and does fly his machine.

Ilminster.

DUNNITE.

Aeroplane Control.

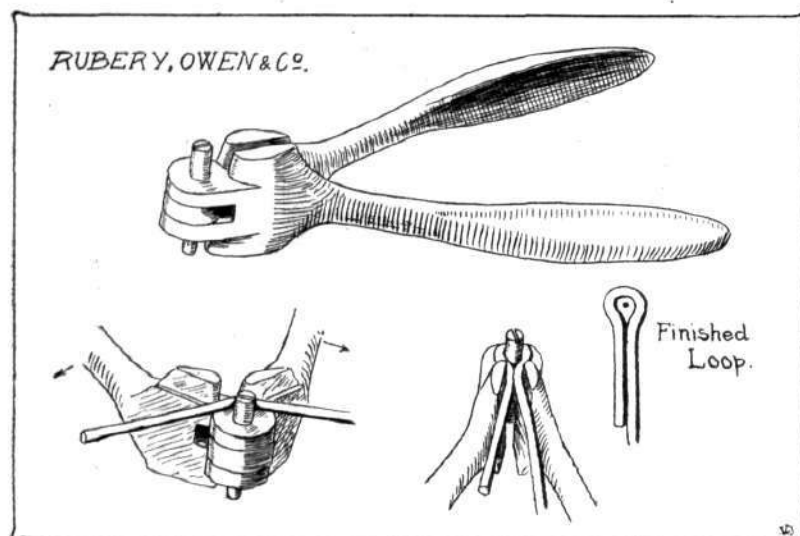
[1617] Allow me to correct Mr. James Means in one instance, he likens his control to a bicycle yet it is the exact opposite. The method of balancing a bicycle is to turn the way you are falling, and I consider that if such a control was universal it would be far superior. If through an air pocket or other cause the machine dived, the pilot's weight would right it, he would simply have to let himself go, the same thing would take place should the right or left wing dip.

Ilminster.

DUNNITE.

RUBERY, OWEN'S PATENT WIRE BENDER.

As mentioned in a short note in a recent issue, Messrs. Rubery, Owen and Co., of Darlaston, South Staffs., have introduced a wire bender, designed to form the necessary loops at the end of aeroplane stays and the like, at one operation, and without any chance of cutting the wire, or of unnecessarily straining the fibres of the cable. We publish some sketches showing the form and



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A new tool for wire bending, marketed by Messrs. Rubery, Owen. How the loop is made is also shown.

operation of this tool, the points to be specially noted being that no sharp edges approach the wire, that two standard sizes of loop can be made with the same tool, and in a variety of wire gauges, and that the instrument can also deal with steel ribbon, of a width not greater than half an inch, with ease.

So long as aeroplane manufacturers use wires and ribbons with loops in them, it appears that they may as well be properly made, and in view of the recent articles in FLIGHT dealing with the danger of scratching wires, &c., in bending, we foresee a great demand for this little tool.



Hydro-Aeroplanes at Boulogne.

IN preparation for a series of exhibition flights at Boulogne, Rene Caudron, accompanied by his mechanic, flew over on the 16th from Crotoy. Marty started off on another machine a few minutes later, but he was forced to come down on the sea between Fort Mahon and St. Quentin Point. In spite of the rough water the machine was dismantled and sent back to Crotoy by road. On Saturday Rene Caudron started up for a flight, but the propeller was splintered by being caught by a wave. Labouchere on the Zodiac hydro-aeroplane, however, made a good flight, and a little later Marty, who was only flying over the sea for the second time, arrived from Crotoy. Subsequently he made two splendid exhibition flights, in one accompanied by Rene Caudron. Monday was a day of accidents. In a squall which suddenly sprang up, Rene Caudron's machine was overturned when starting off. Marty's was damaged by being blown on to the rocks while Labouchere's also suffered.

Aerial Post at German Manœuvres.

IN connection with the forthcoming manœuvres at Doeberitz Camp, the German Minister of War has decided that the mails for the troops shall be carried by aeroplanes.

Practical Work by German Military Pilots.

QUITE a number of aeroplanes have been delivered recently at Johannisthal to the German military authorities. From there each one has been taken by the aerial way by a military pilot accompanied by a passenger to the aviation centre at Doeberitz Camp.

Aircraft at German Manœuvres.

IT is stated that some forty aeroplanes, as against eight last year, will be employed in this year's German Army manœuvres, as well as a quartette of airships. The Minister of War has given special orders that the slower types of aeroplanes are to be used so that the observers may have the best conditions for their work.

Aeroplanes in Tripoli War.

IT has been very difficult to get reliable news as to the working of the aeroplanes and dirigibles with the Italian Army in Tripoli, and it is, therefore, interesting to read what Mr. H. Seppings Wright says, who spent nearly a year as war correspondent for the Central News with the Turkish Army. He says:—

"This war has clearly shown the terrible possibilities of aviation, especially against a defenceless people. The dirigible is virtually an aerial battleship to which the aeroplane stands in the relation of scout, and employed together the two must necessarily revolutionise warfare. What I have seen in the desert of Tripoli has convinced me of the urgent need for a great English aerial fleet. The Turks have hitherto had neither dirigible nor aeroplane, and though they have fired upon the Italian airmen the latter have always been able to evade their fire pretty successfully. The atmospheric conditions in Tripoli are not abnormally favourable to aviation; indeed, high winds are frequently experienced, but the Italian dirigibles and aeroplanes, manned by clever and plucky men, have carried on their operations without meeting with a single serious mishap. The aeroplane scouts ran pretty high risks when they ventured inland over the Turkish camp, because if their engines had failed they would have been bound to come down in the desert. Tripoli was too far away to be reached by a *vol plané*.

"The bombs dropped from the aeroplanes were small ones, about the size of a teacup, but those which came down from the dirigibles must have weighed about 30 lbs. At my suggestion the Turkish troops were drilled to adopt a special formation when the dirigibles were about, and by spreading themselves out fanwise and throwing themselves flat when the bombs came down escaped with little hurt. But the bigger bombs could do terrible execution when they fell among a crowd, as, for instance, in a market-place. Under such circumstances I have seen as many as eight or ten persons killed and thirty or forty injured at a time, women and children being among the number."

Belgium Hydro-Aeroplane Competition.

ENTRIES for this competition which is to be held at Tamise from Sept. 7th to 16th, which have been received include two Paulhan, one each Maurice Farman, Nieuport, Lanser, Jero, Astra, R.E.P., Donnet-Leveque and two Sanchez Besa. The competition will include duration, distance required for rising from water both with and against the current, non-stop flights, manœuvring tests.



Aeronautical Patents Published.

Applied for in 1911.

Published August 22nd, 1912.

17,405. H. HILDEBRAND. Aerial craft.
17,894. J. S. RYAN. Aeroplanes.

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